

### COMPARISON OF RADAR RETURN FROM ARROW I, G2S-57 & U-2

The following is a comparison of the return from 1/40th scale models of relatively simple aircraft shapes designated Arrow I, G2S-57 and U-2. Comparisons have been made between the three models at a range of 228" and 62", this range being measured from the center of rotation of the model to the apex of the transmitting horn. Measurements were made at the test frequencies of 2.9, 5.9 and 9 Kmc which give full scale frequencies of 72.5, 147 and 225 mc.

The first chart of this report shows a comparison for each model between the response at a range of 62" and the response at 228" for an elevation angle of 00 and both horizontal and vertical polarization.

The second chart shows a comparison of the three models at the range of 62" for a  $0^{\circ}$  elevation.

The third chart shows a comparison of the three models at a range of 228" at both polarizations and for elevation angles of 0°, -7° and 11°.

In computing the peak response the actual peak value has been used without degrading it to the  $3^{\circ}$  wide point.

# COMPARISON OF 62" AND 228" RANGE MEASUREMENTS ON 1/40th SCALE ARROW I, G2S-57 AND U-2

### Square Meters

					<b>-</b> 1			
				62". Rang		row:I	228# Ran	σ <b>ο</b>
					_			~
Freq.		Elev.		Peak	Peak		Peak	Peak
mc.	Ē	Angle	Av.	(1)	(2)	Av.	. (1)	(2)
72.5		0	5.5	<b>57</b>	21	6.5	73	20
147.0	Hor.	ŏ	3.5	57	90	6.0	180	40
	HOI.	0	7.0	130	110	12.0	260	125
225.0		O	1.00	· · · · · · · · · · · · · · · · · · ·	710	1240		/
72.5		0	7.5	90	18	8.0	125	18
	Vert.	ŏ	4.0	110	32	8.0	180	30
147.0	vert.	0		240	125	17.0	520	180
225.0		U	7.5	240	125	11.00	520	100
		-	1-40-5					
			7		•	G2S-57		
				Peak	Peak	• •	Peak	Peak
		are some	Av.	(1)	(2)	Av.	(1)	(2)
				\-/_		-	13.00	<del>- 1-7-</del>
72.5	e de la companya de l	0	8.0	. 65	90	12.5	45	190
147.0	Hor.	Ö	3.5	25	25	.8.0	80	150
225.0	INOT •	ŏ	8.0	36	45	12.5	190	190
227.0					•			
72.5		VO S	3.6	50	9	6.4	64	<b>3</b> 6
	Vert.	o .	3.5	45	10	8.0	90	23
147.0	AGLO.	0	8.0	80	10	13.0	180	23
225.0	,	. U	0.0	00	10	٠,٠٠	100	
* .	• •				1			
						U <b>-</b> 2		
	_			Peak	Peak		Peak	Peak
			Av.	(1)	(2)	Av.	(1)	(2)
						-		
72.5		0	16.0	110	28	21.0	230	55
147.0	Uca	0	7•5:		11	12.5	700	40
	Hor.	0	14.0	450	75	22.0	500	80
225.0		U	T11•0	470	44	22.0	<b>500</b>	
72.5		0	4.5	45	5	6.5	90	9
147.0	Vert.	Ö	7.6	80	6	9.0	145	8
	A QT. C.	0	9.0	300		14.0	450	
225.0		U	フ・リ	<b>700</b>		74 • O	4,70	

NOTE: See Patterns for Exact Location of Peak

## COMPARISON OF 1/40th SCALE ARROW I, G2S-57 AND U-2

### Measured at 62" Range

#### Square Meters

Freq.	Ē	Elev. Angle	Av.	Arrow : Peak (1)	Peak (2)	Av.	02S-57 Peak (1)	Peak (2)	Av.	U-2 Peak (1)	Peak
72.5 147.0	Hor.	0	5°5 3°5	57 57	21 90	8.0 3.5	65 <b>2</b> 5	90 25	16.0 7.5	110	28.0 11.0
225.0		0	7.0	130	110	8.0	36 50	45	14.0	450	42.0
72.5 147.0 225.0	Vert.	0 0 0	7.5 4.0 7.5	90 <b>1</b> 10 240	18 32 125	3.6 3.5 8.0	50 45 80	9 10 10	4.5 7.6 9.0	45 80 <b>300</b>	5.0 6.0

<b>Peak</b>		
(1) Broadside (2) Aft	Broadside Leading Edge	Broadside Leading Edge

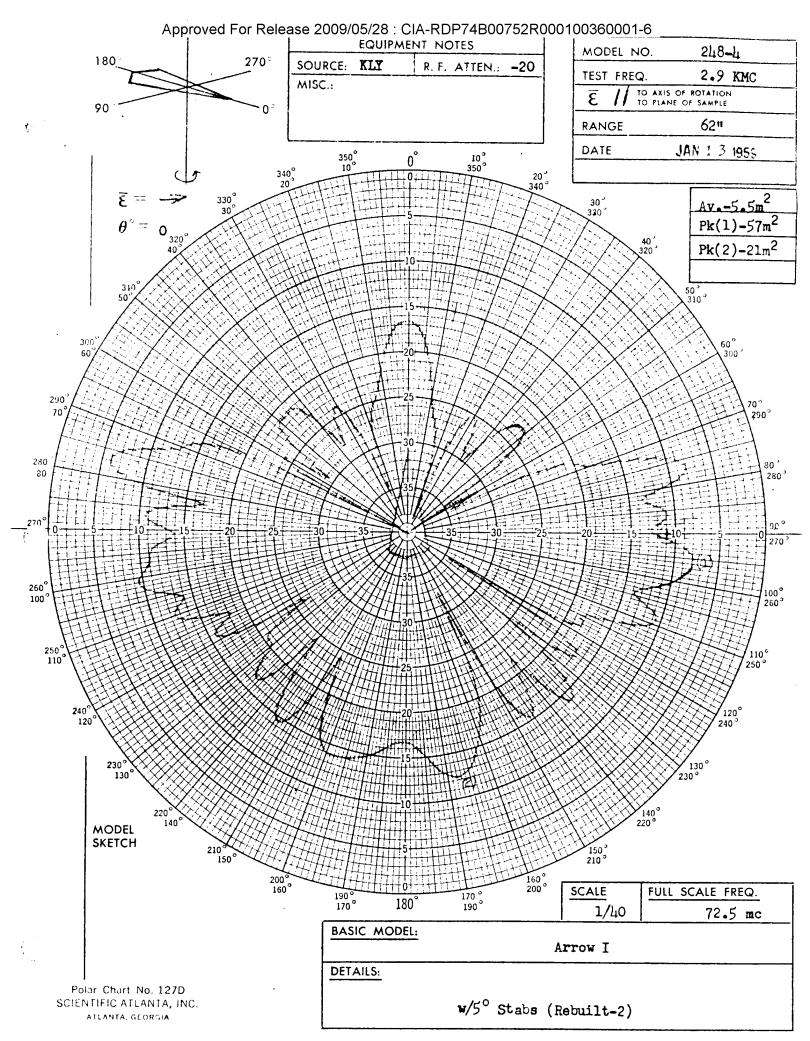
NOTE: See Patterns for Exact Location of Peak

COMPARISON OF 1/40th SCALE ARROW I, G2S-57 AND U-2

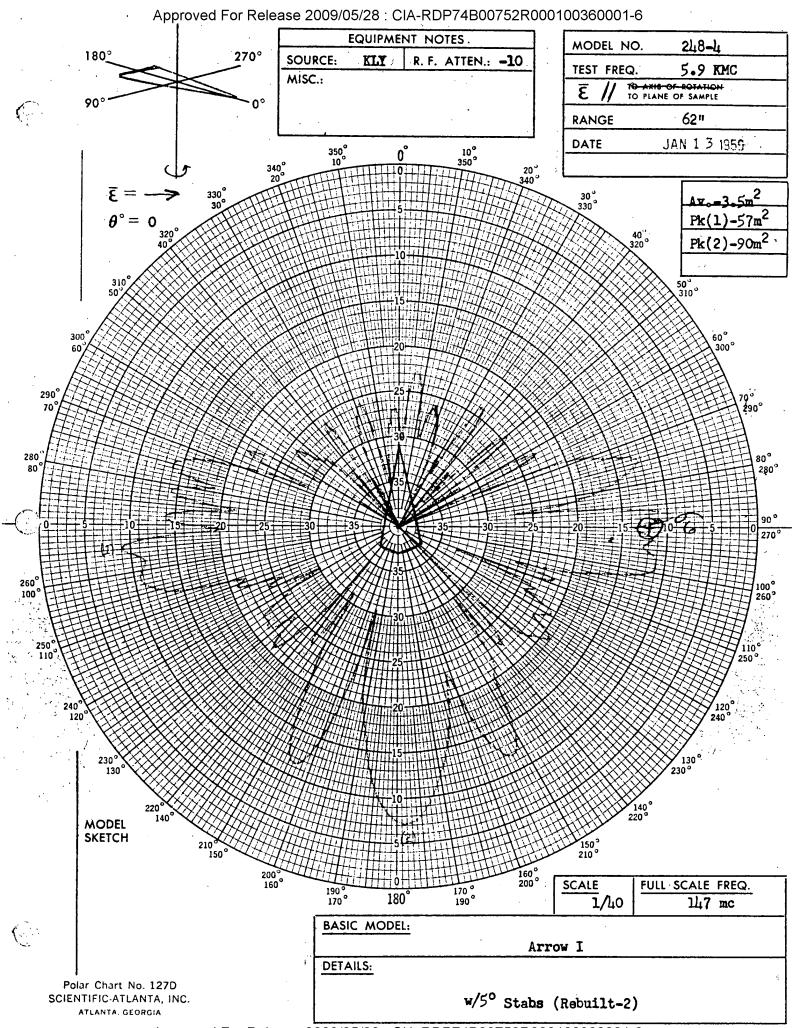
Measured at 228" Range

							Square Meters					
Daga		TOT	•	Arrow I	Daala		02S-57			U-2	Dools	
Freq.	Ē	Elev. Angle	Av.	Peak (1)	P <b>e</b> ak (2)	AV.	Peak (1)	Peak (2)	Av.	Peak (1)	Peak (2)	
72 <b>.</b> 5		0	6.5	73	20	12.5	45	190	21.0	230	55.0	
147.0 225.0	Hor.	0	6.0 12.0	180 260	40 125	28.0 12.5	80 <b>1</b> 90	150 190	12.5 22.0	400 500	40.0 80.0	
72.5		0	8.0	125	18	6.4	64	36	6.5	90	9.0	
147.0 225.0	Vert.	0	8.0 17.0	180 520	30 180	8.0 13.0	90 180	23 23	9.0 14.0	145	8.0	
72.5 11.7.0 225.0	Hor.	-7 -7 -7	9.5 5.0 10.0	65 80 <b>7</b> 2	40 90 90	16.0 11.5 13.0	45 80 110	230 160 180	25.0 9.0 10.6	160 200 460	43.0 40.0 100.0	
72.5 147.0 225.0	Vert.	-7 -7 -7	8.0 8.0 12.5	72 57 108	18 90 120	7.5 10.0 13.0	80 110 160	40 28 35	5.0 6.4 13.0	<b>95</b> 50 500	4.0 14.0 25.0	
72.5 11.7.0 225.0	Hor.	-11 -11 -11	8.5 5.0 12.0	80	25 80 72	10.0 8.0 14.5	35 90 200	180 180 57	30.0 8.0 15.0	240 170 230	18.0 30.0 85.0	
72.5 147.0 225.0	Vert.	-11 -11 -11	8.0 7.0 8.0		23 82 110	12.0 10.0 9.0	80 145 90	57 25 100	5.8 4.1 8.0	170 90 400	4.5 23.0 58.0	
Peak (1) (2)			Broad Aft.	dside		Broad Leadi	dside Lng Edg	e	Broad Leadi	side ng Edg	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	

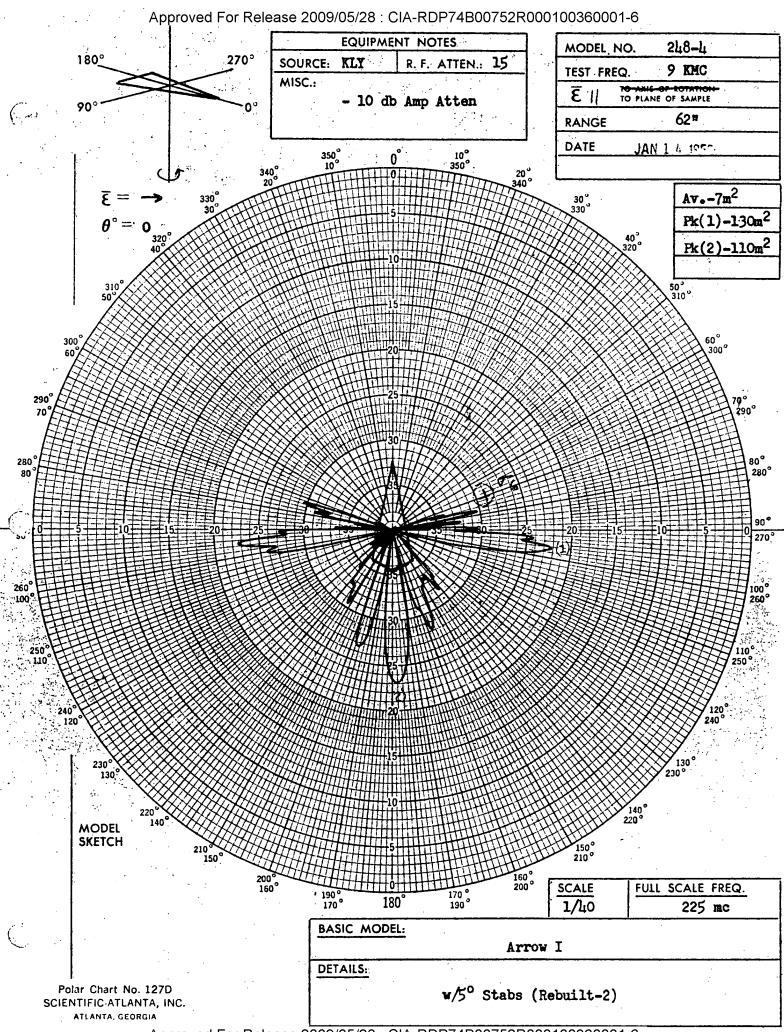
NOTE: See Patterns for Exact Location of Peak

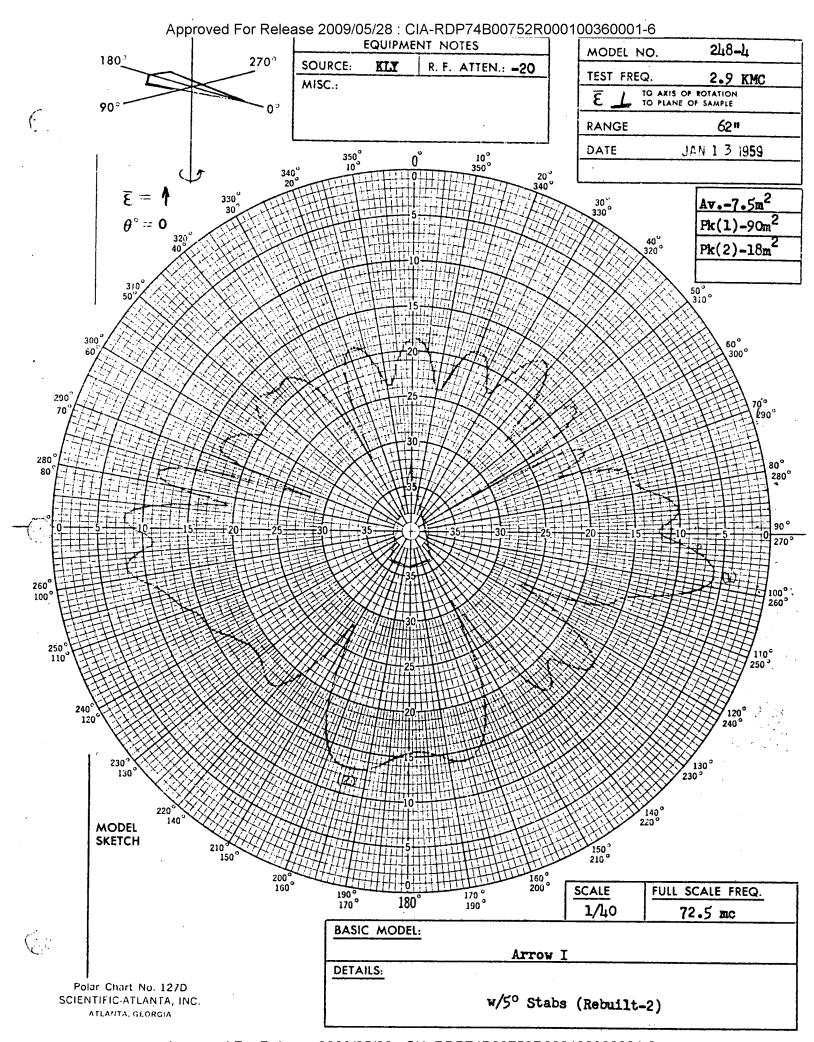


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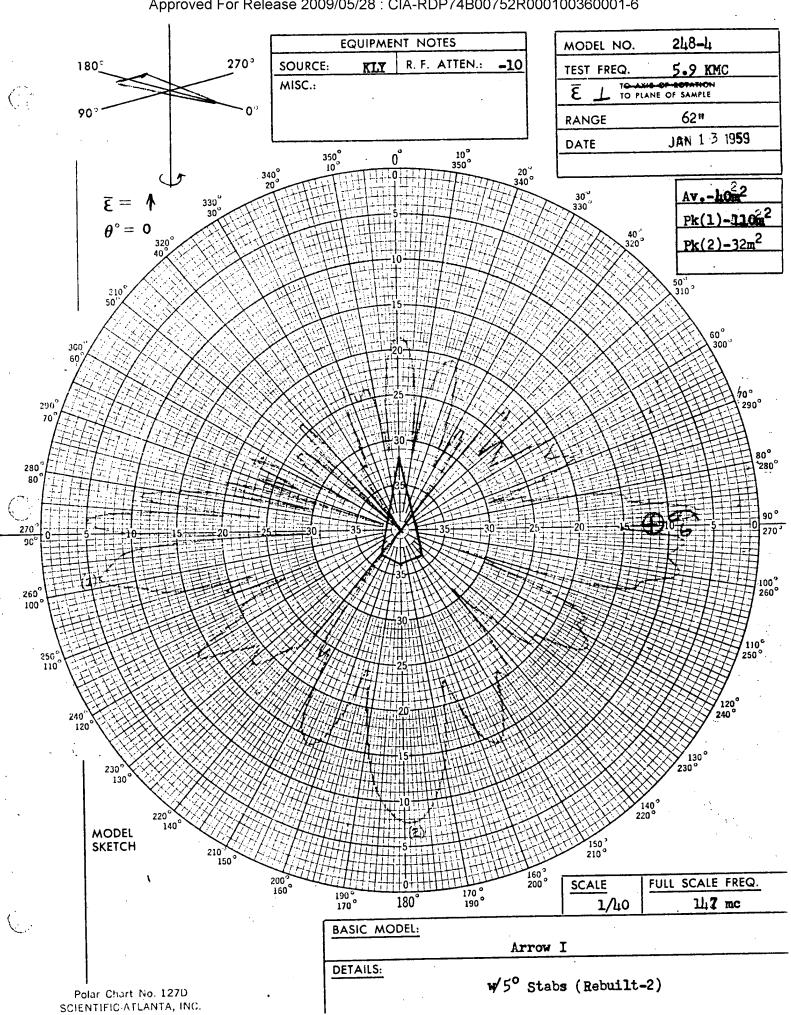


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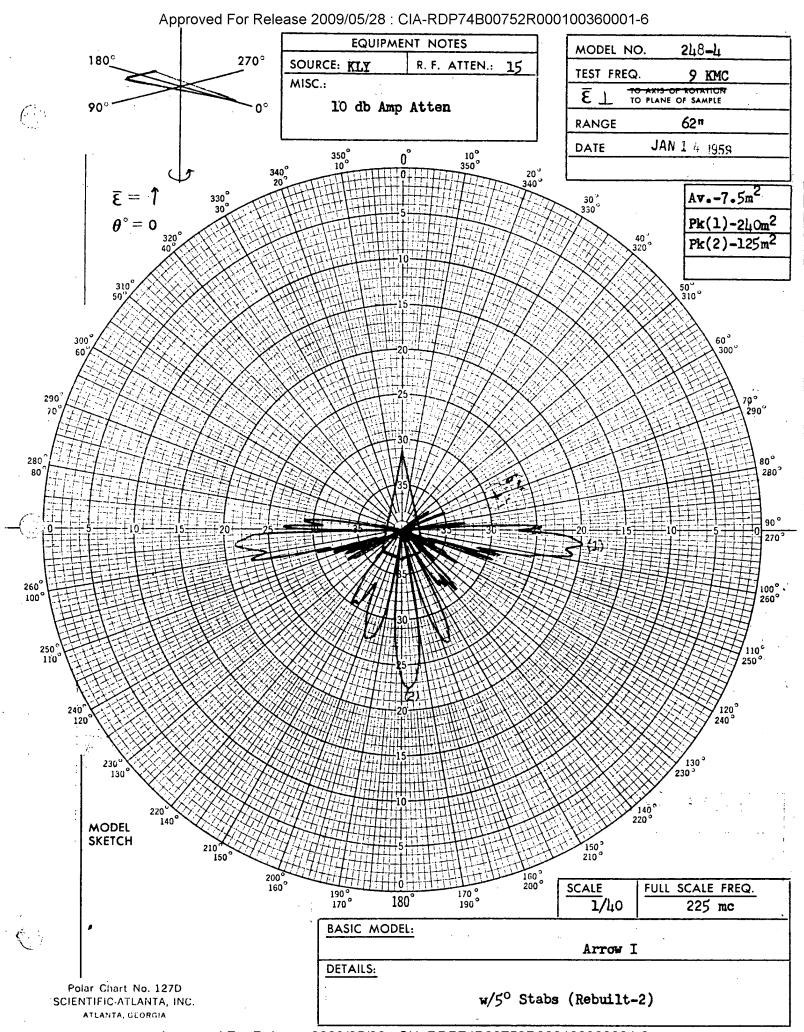




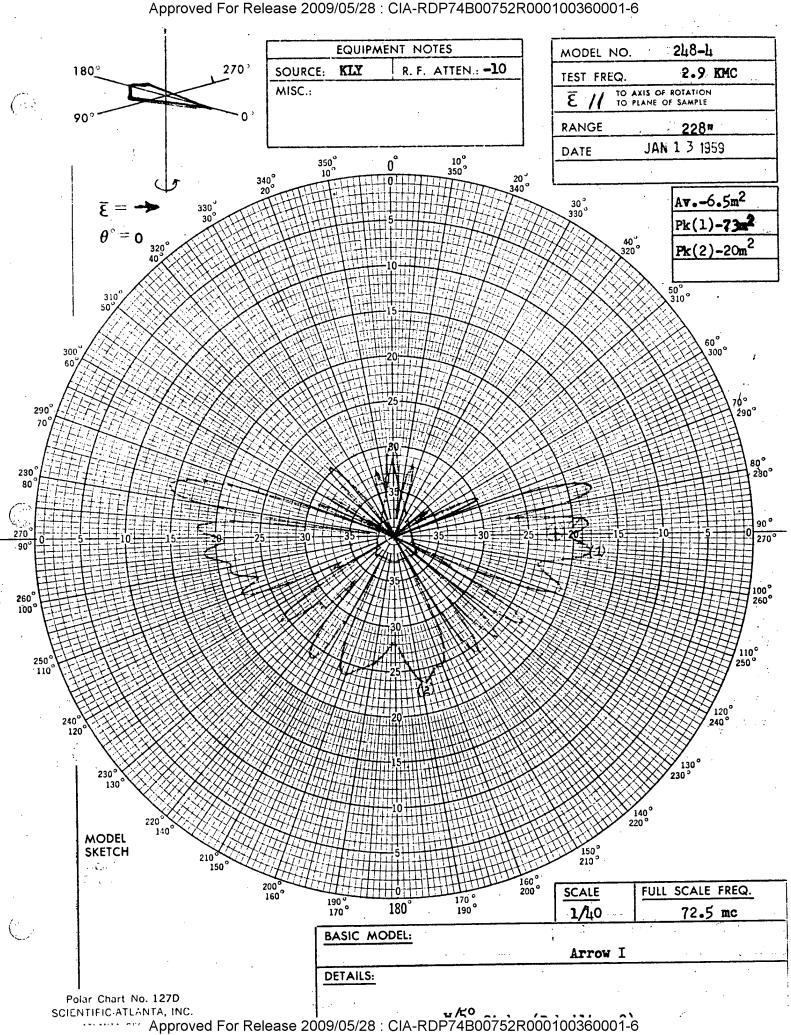
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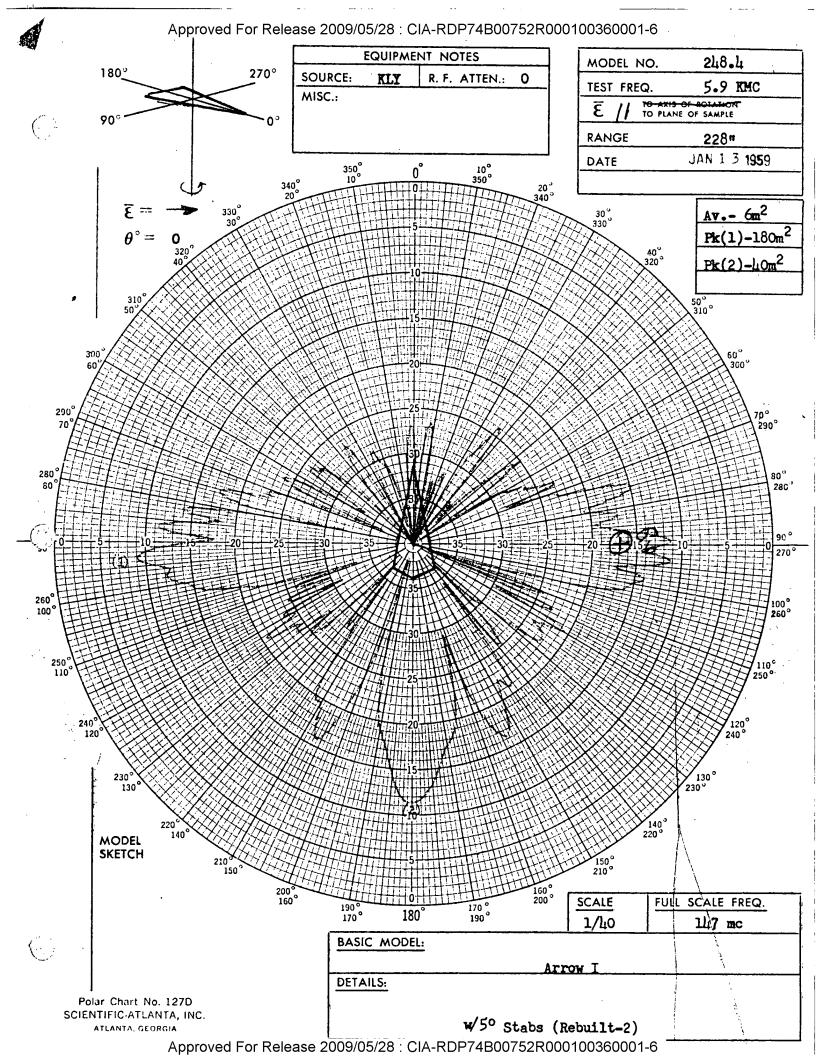


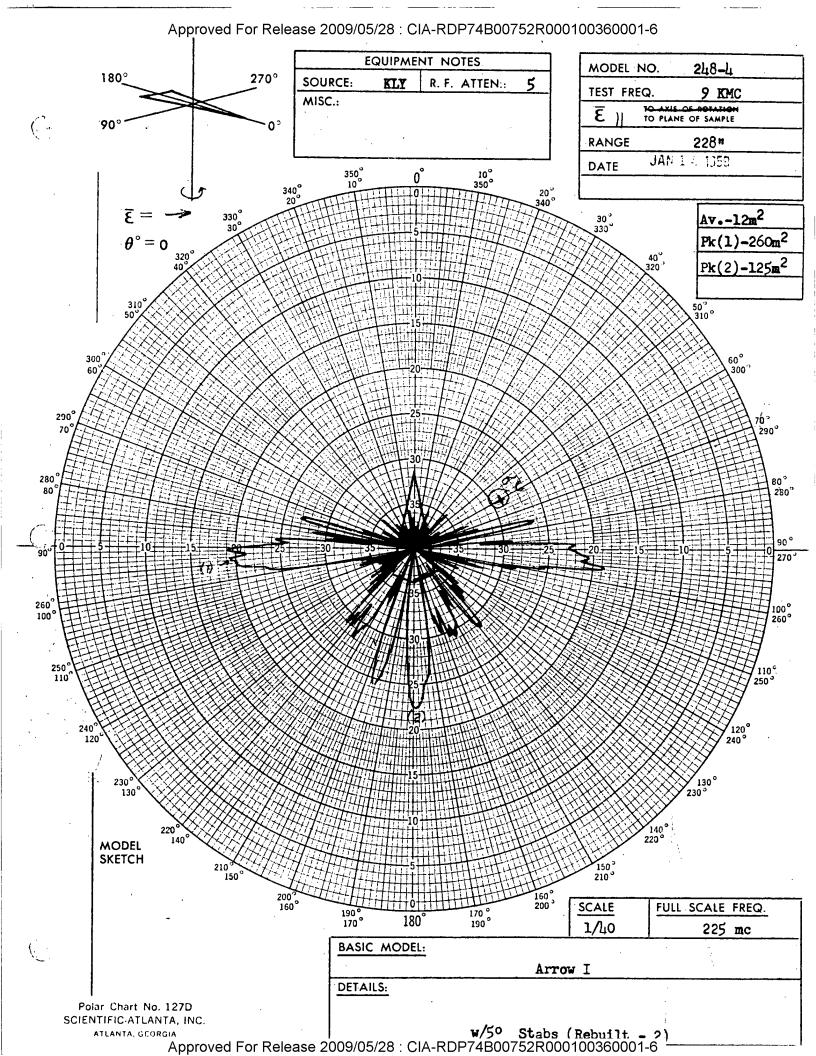
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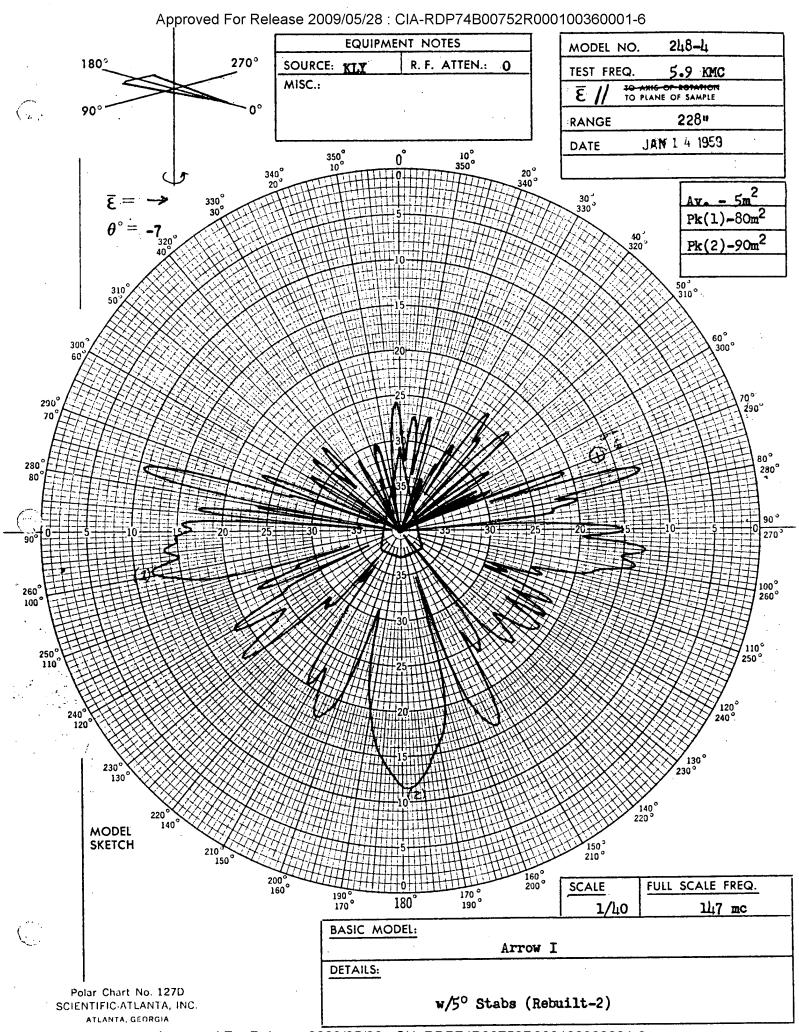
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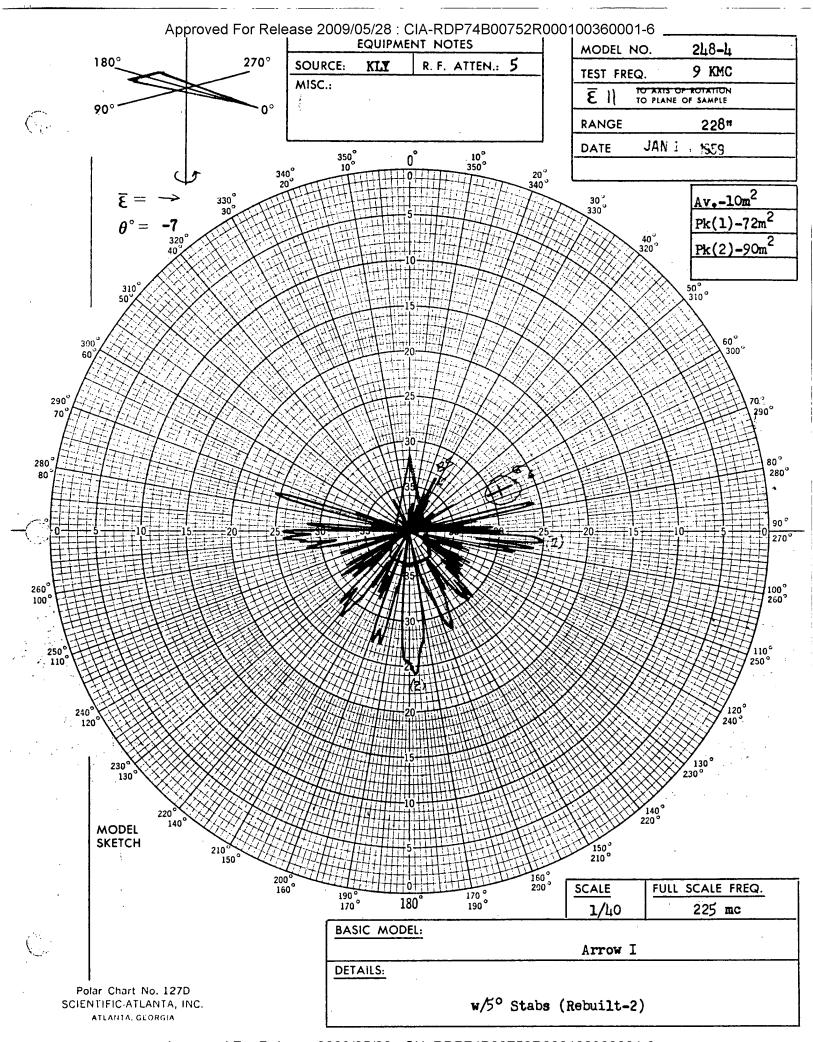




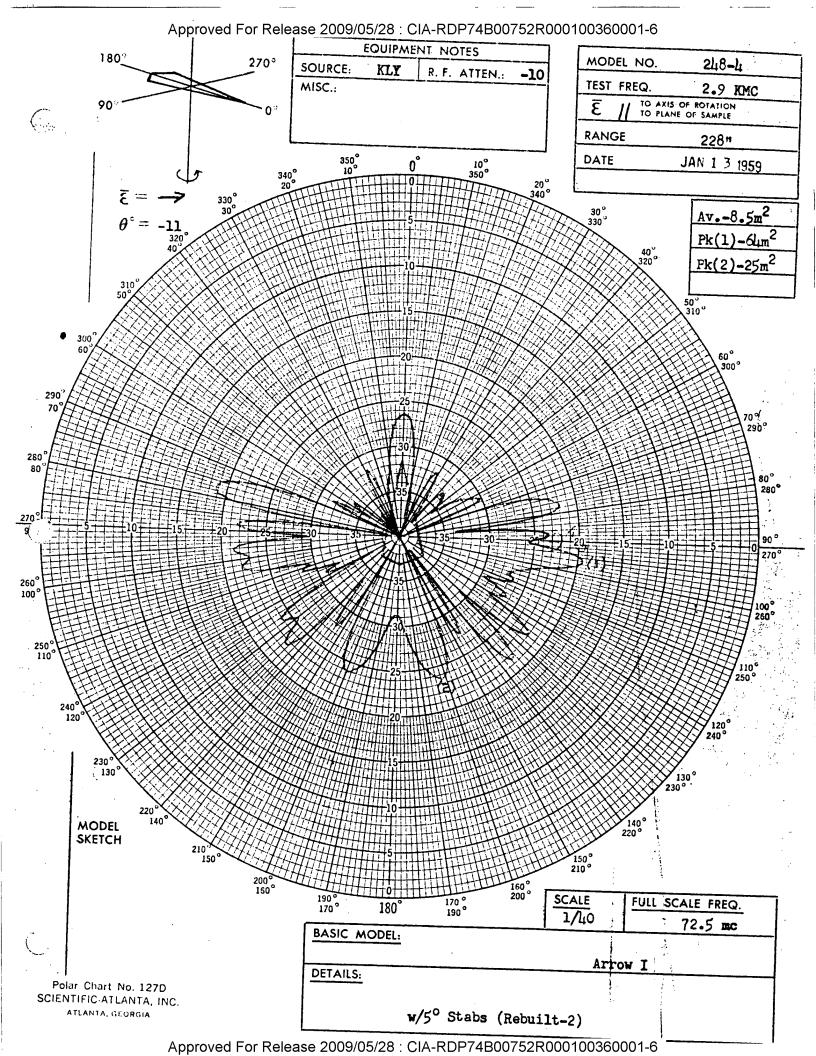


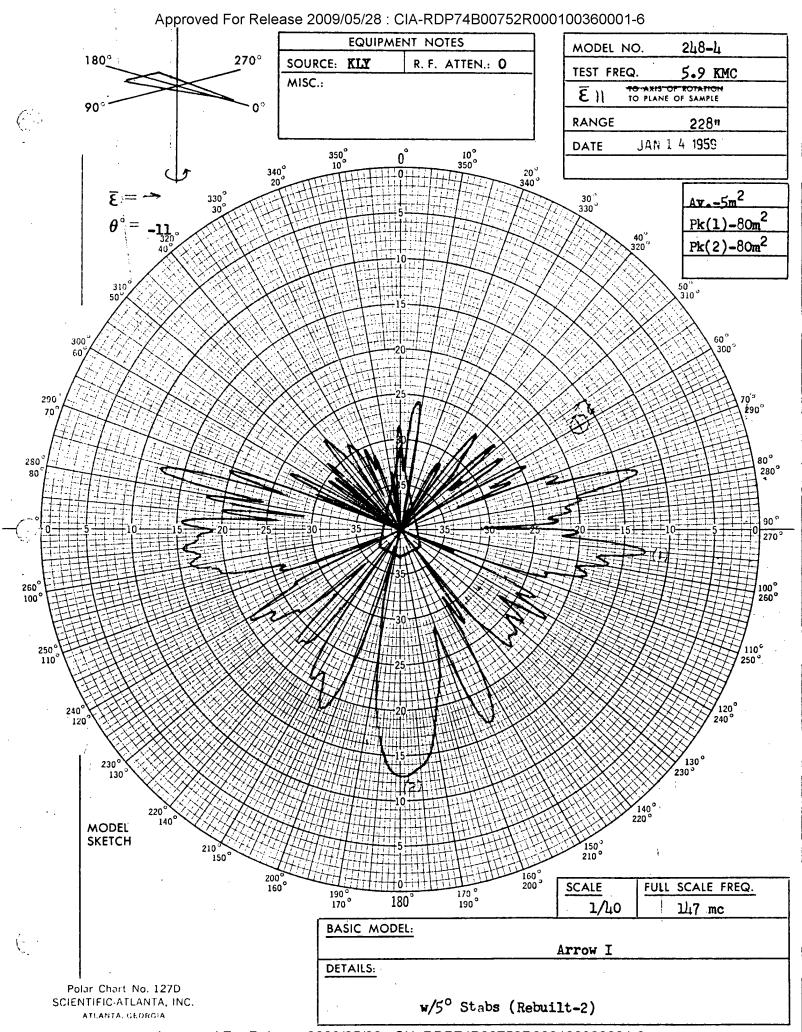
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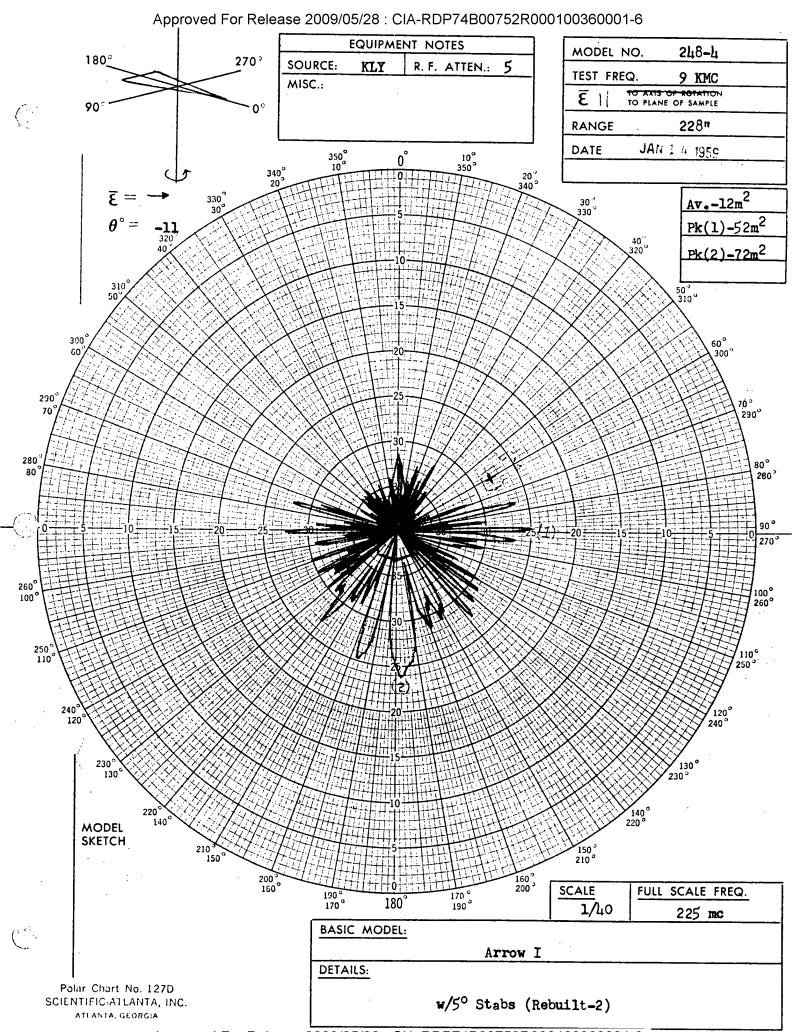


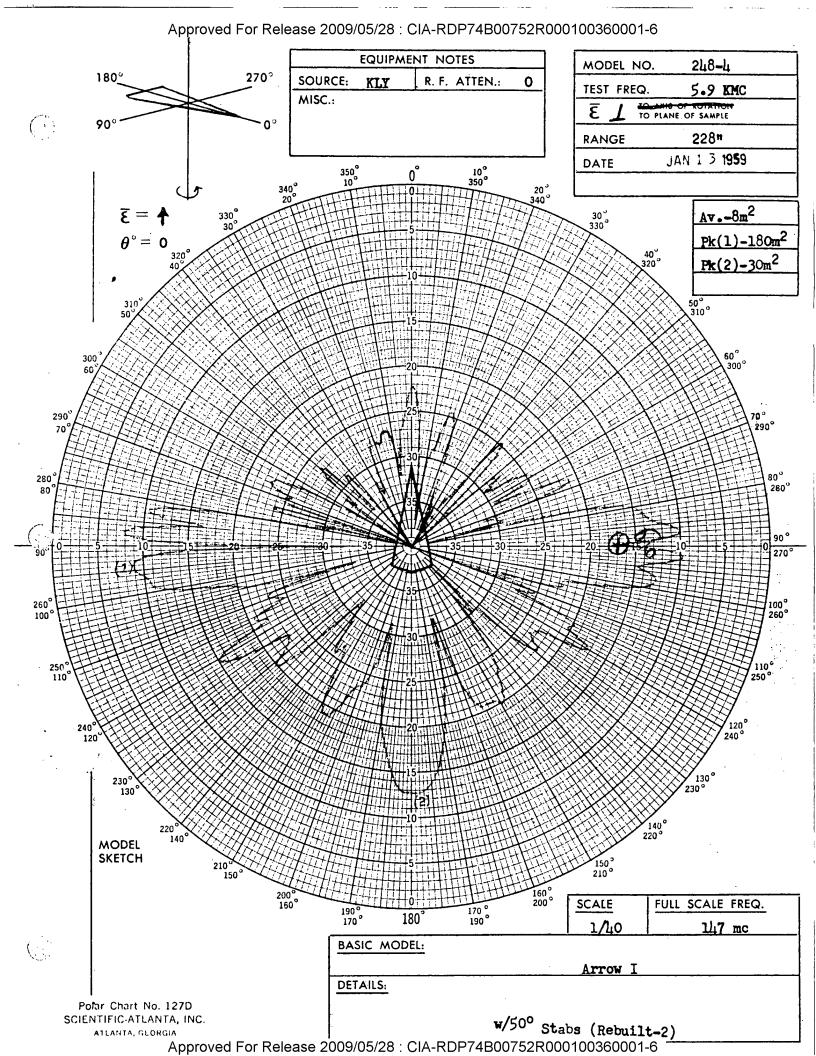
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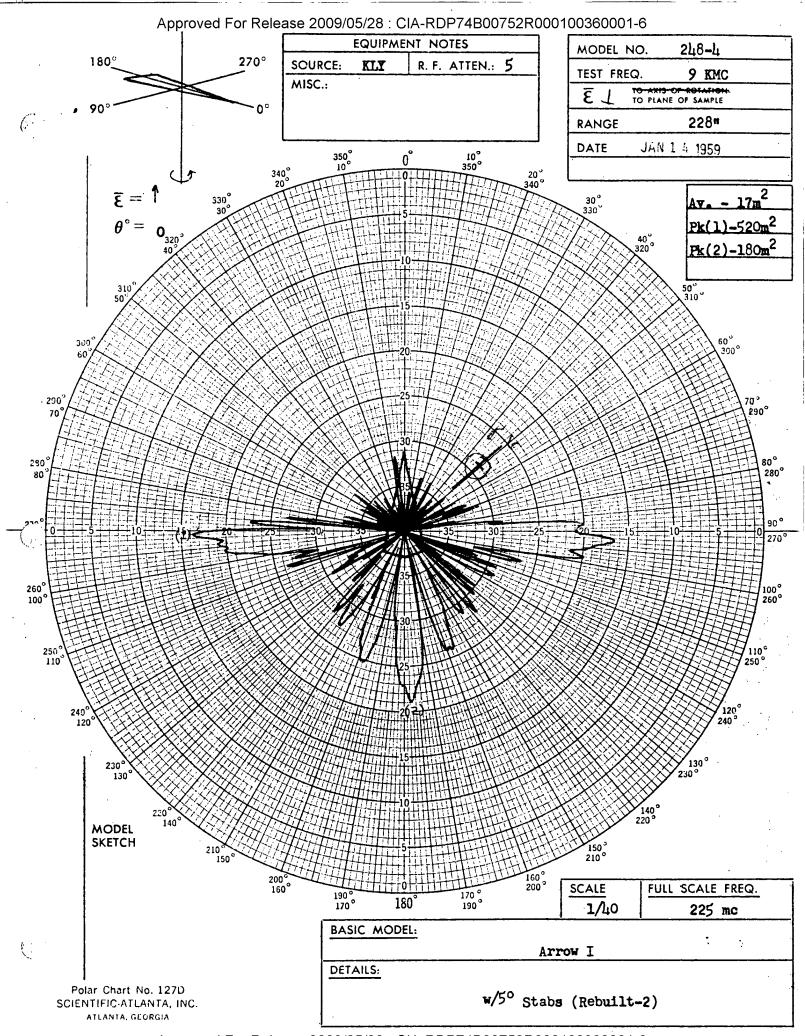




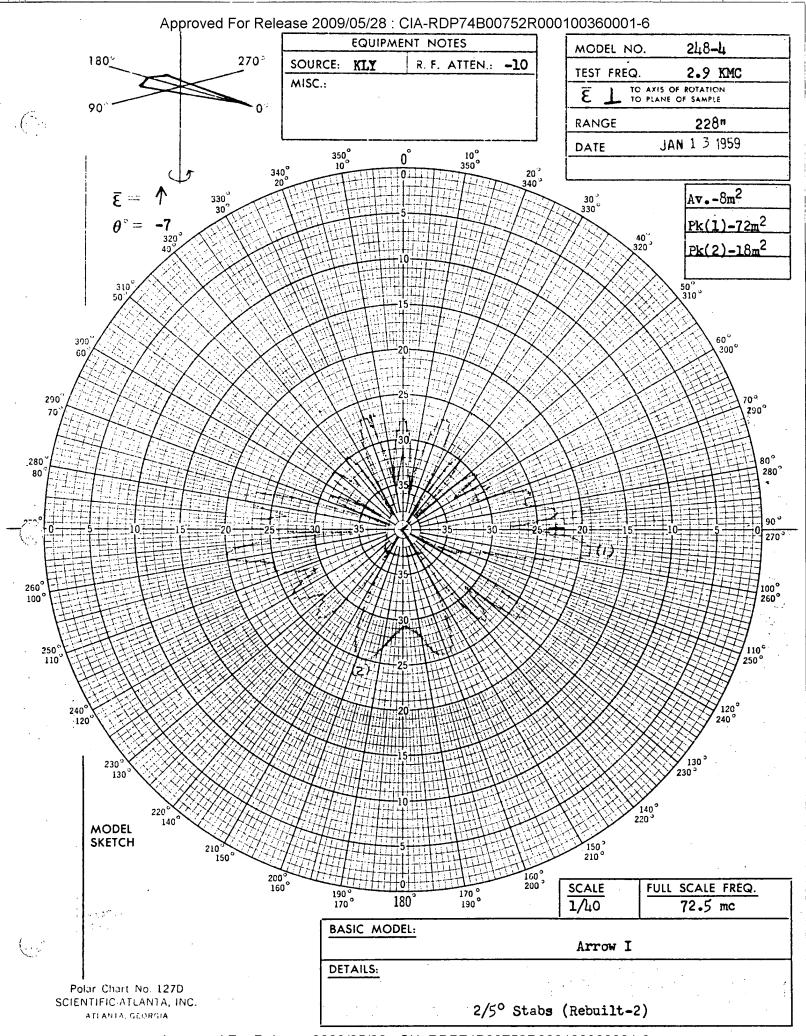
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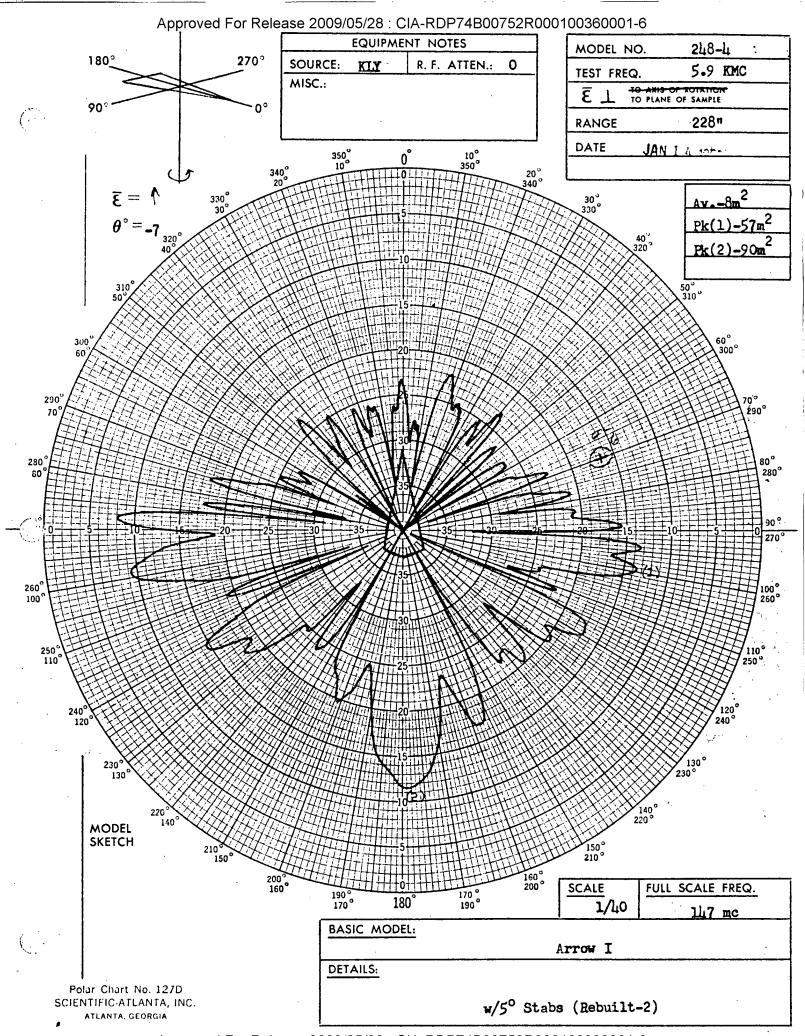




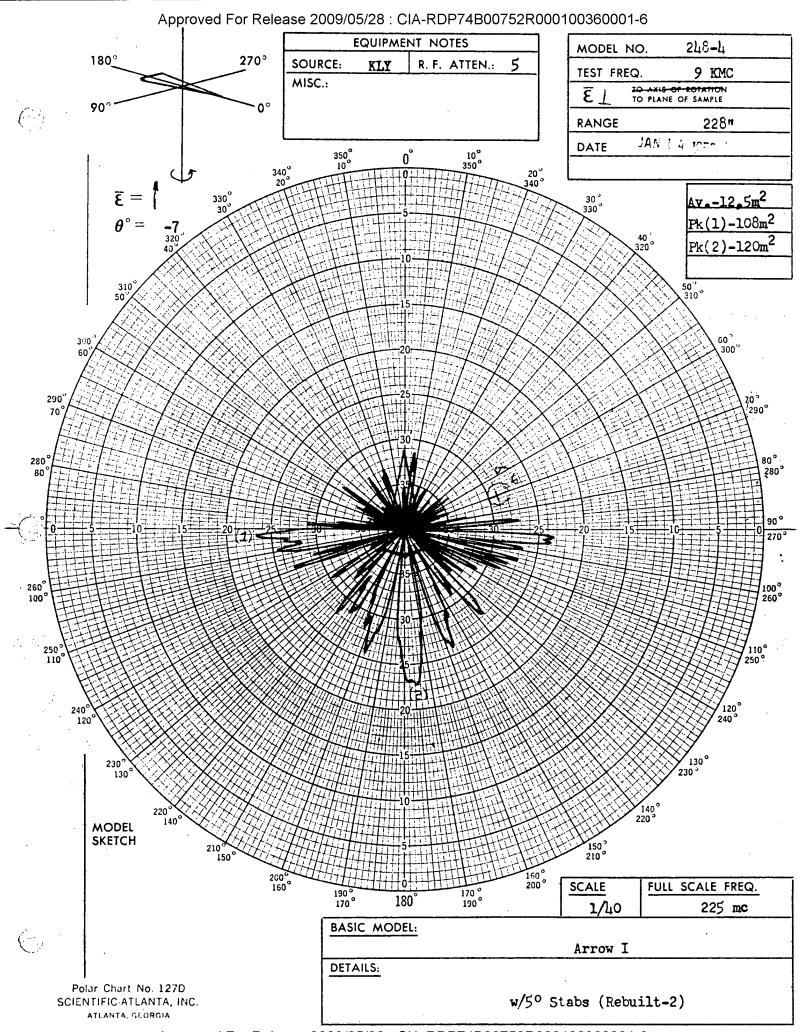
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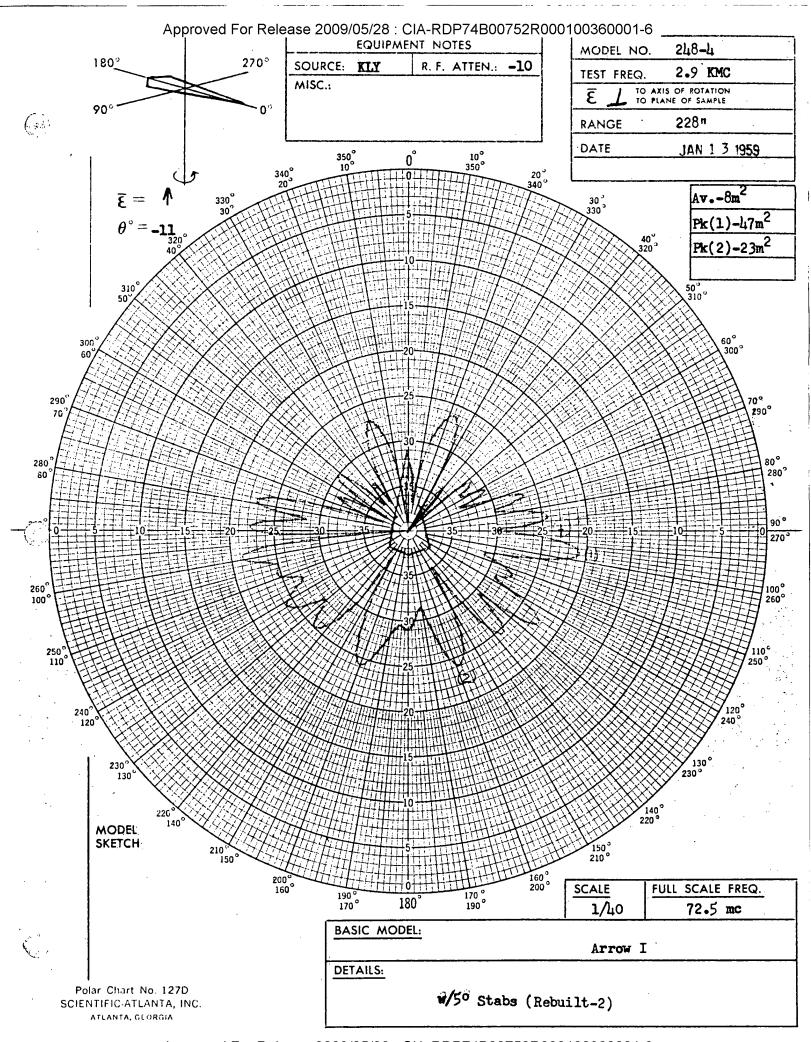
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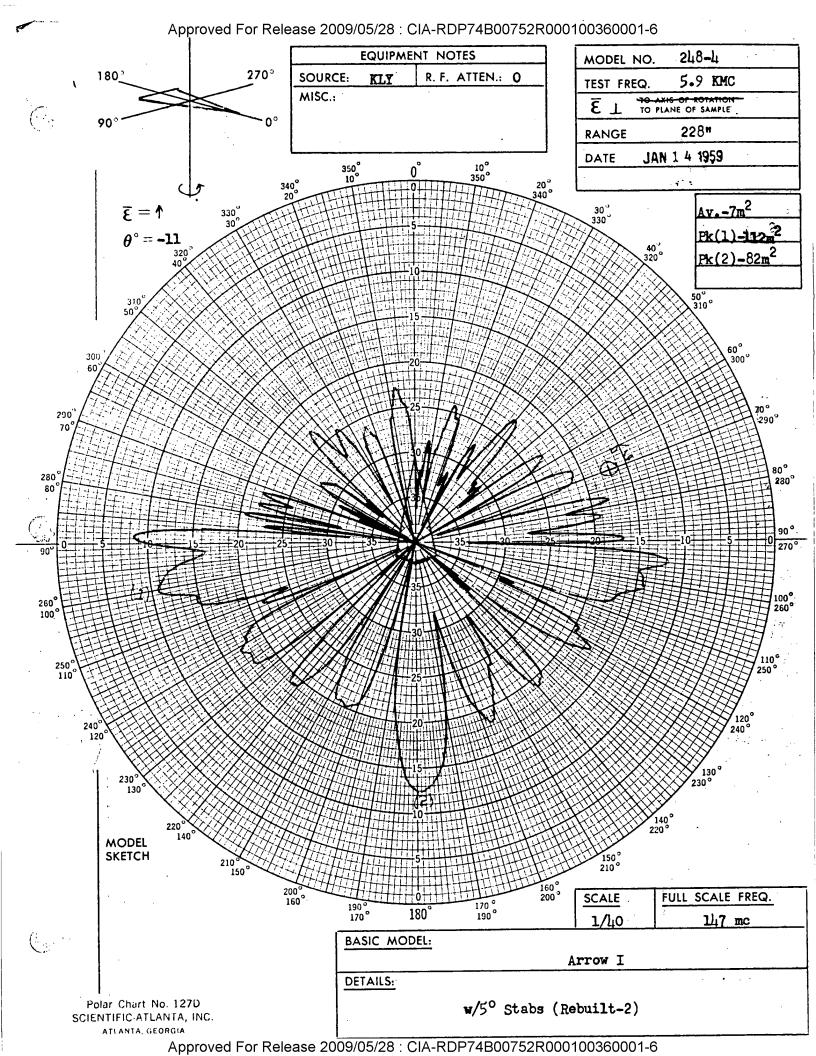
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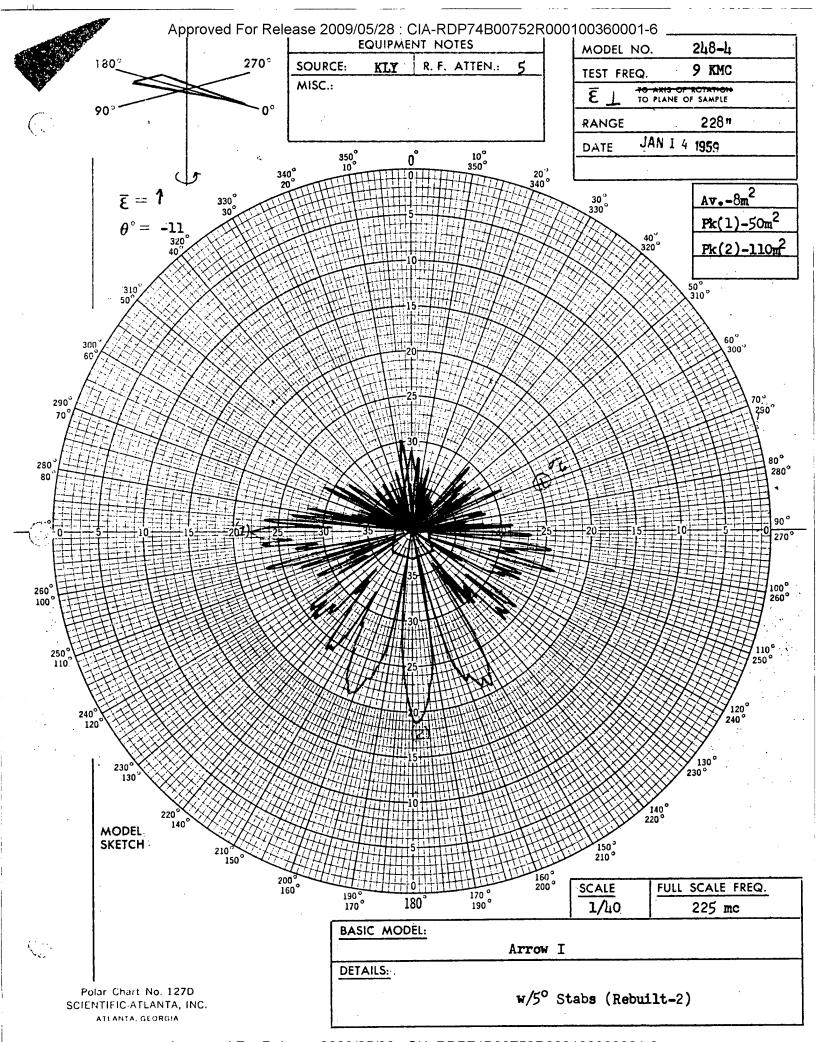


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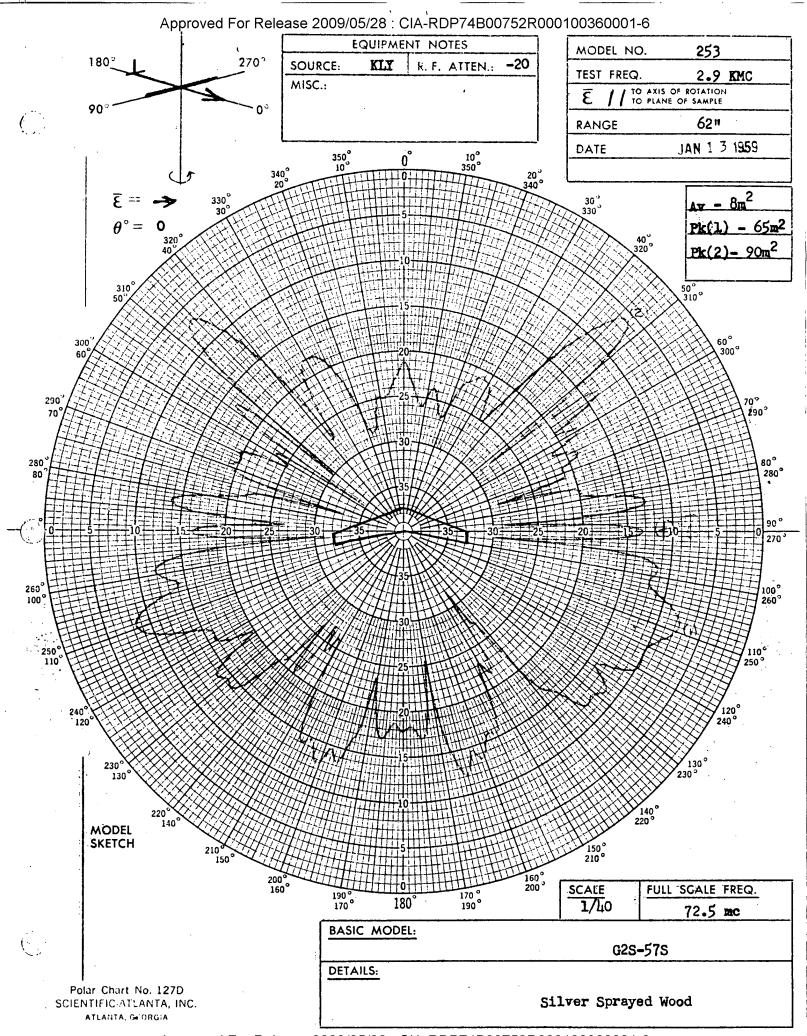


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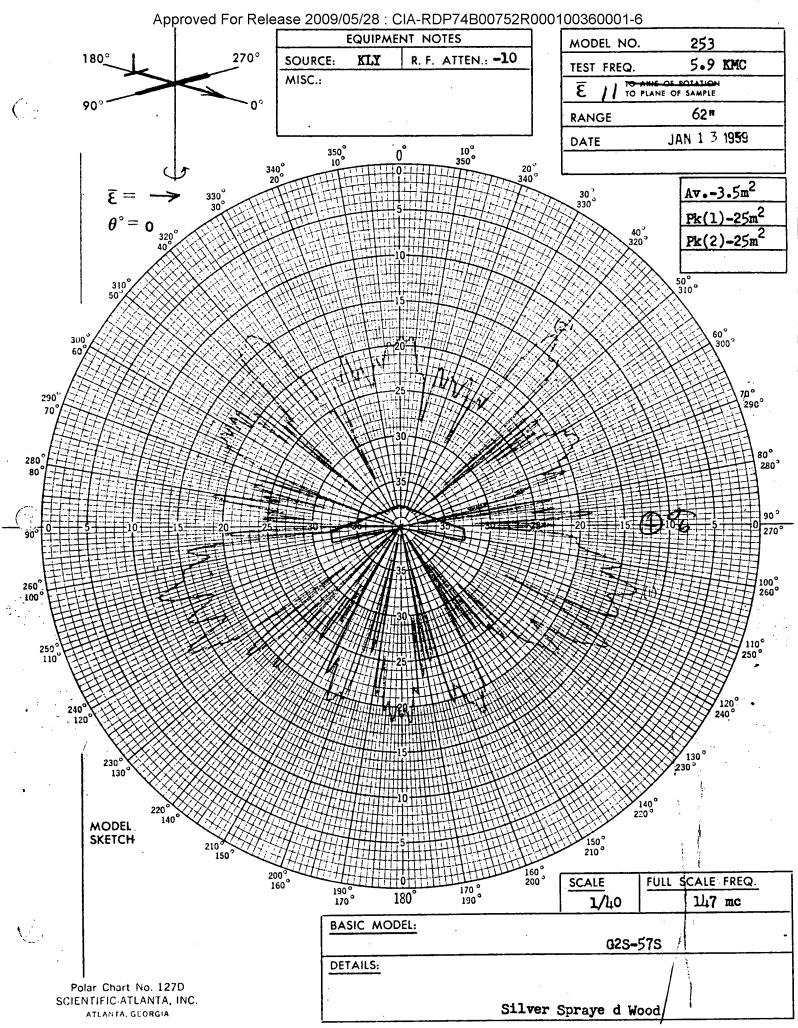




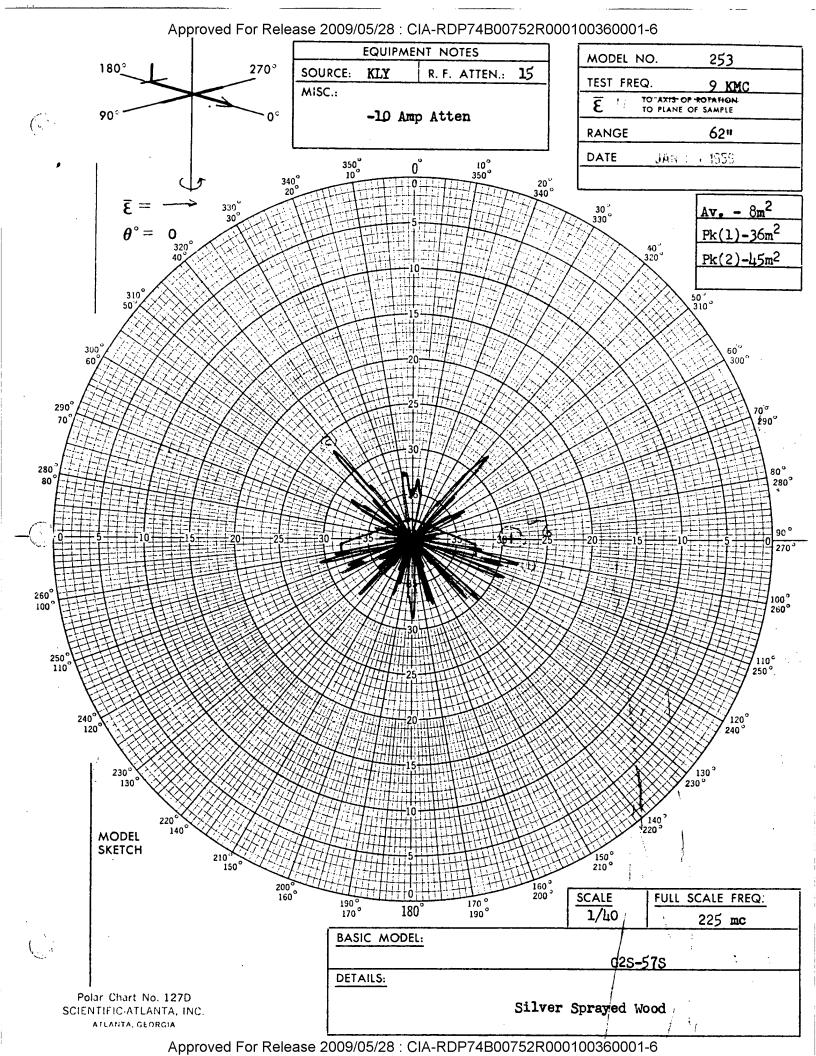
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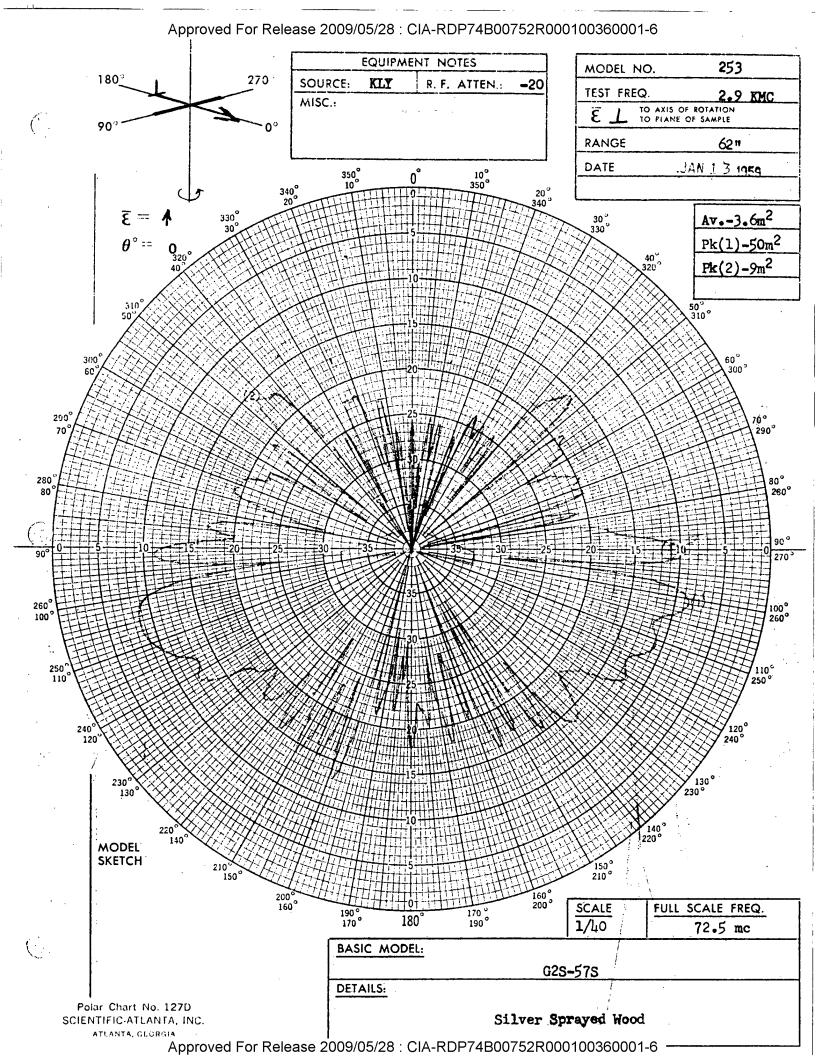


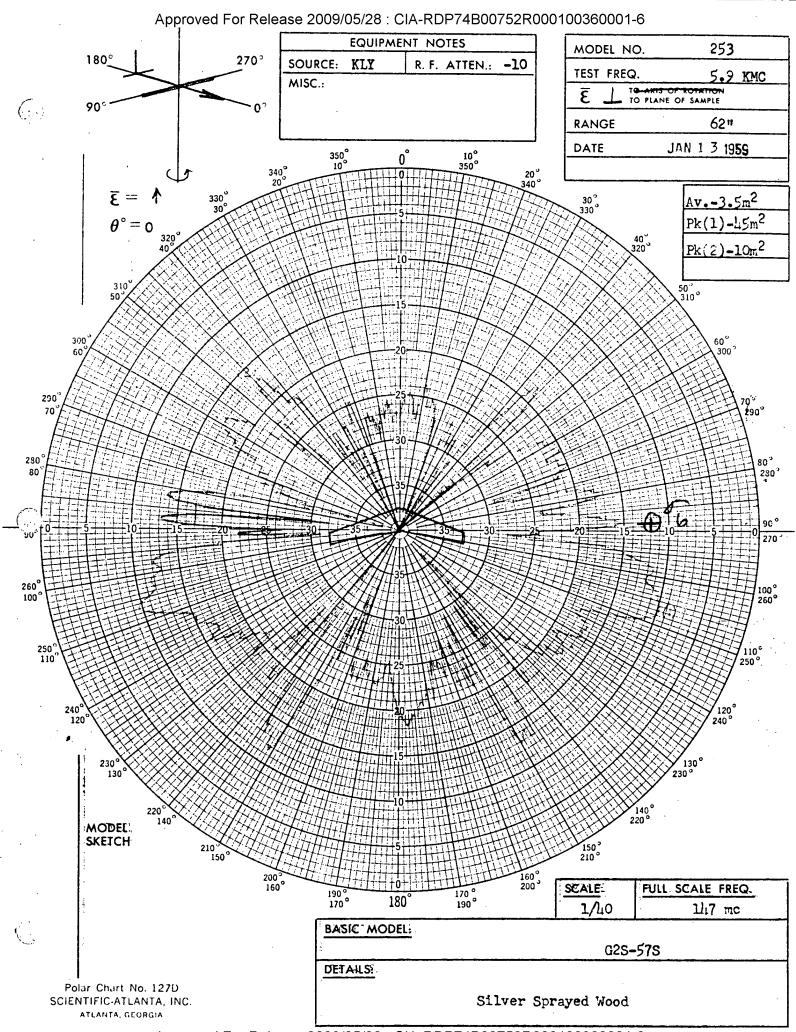
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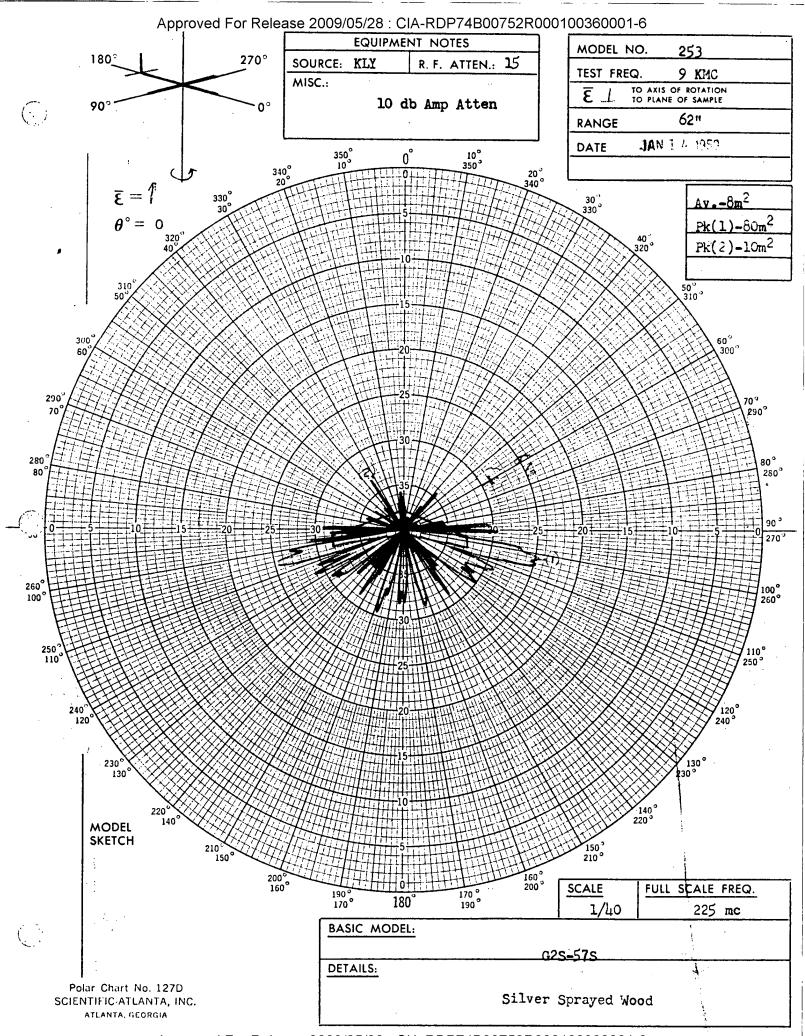


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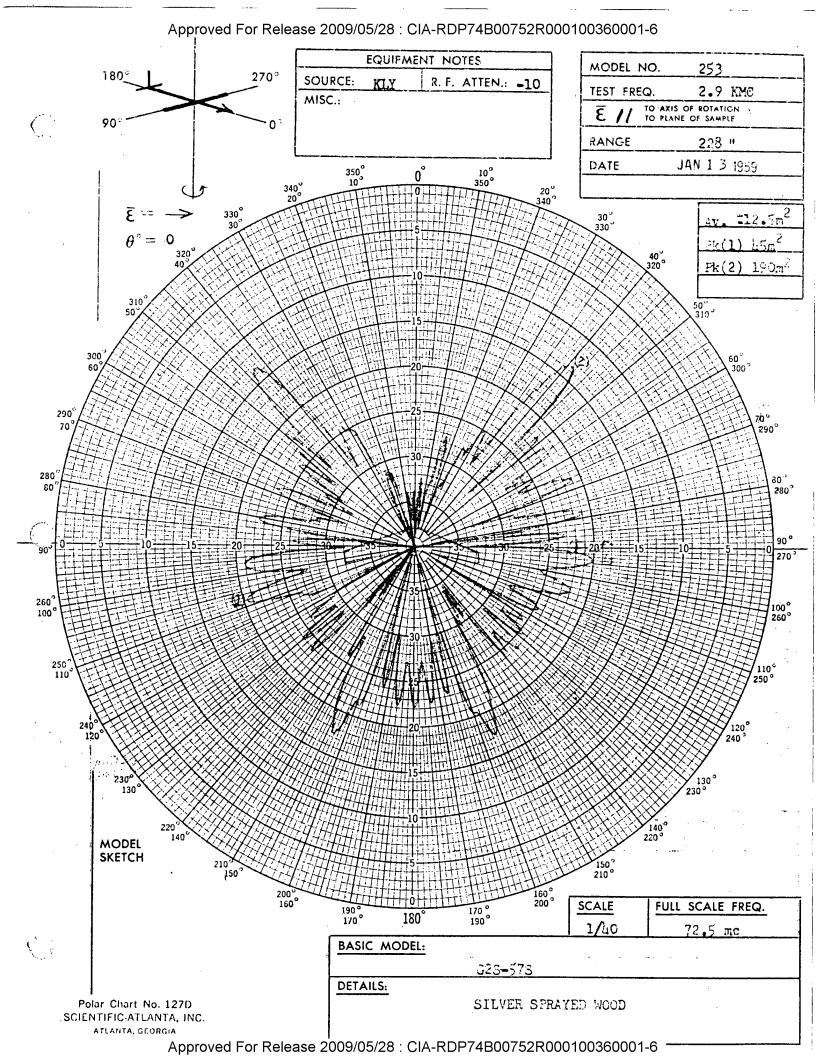


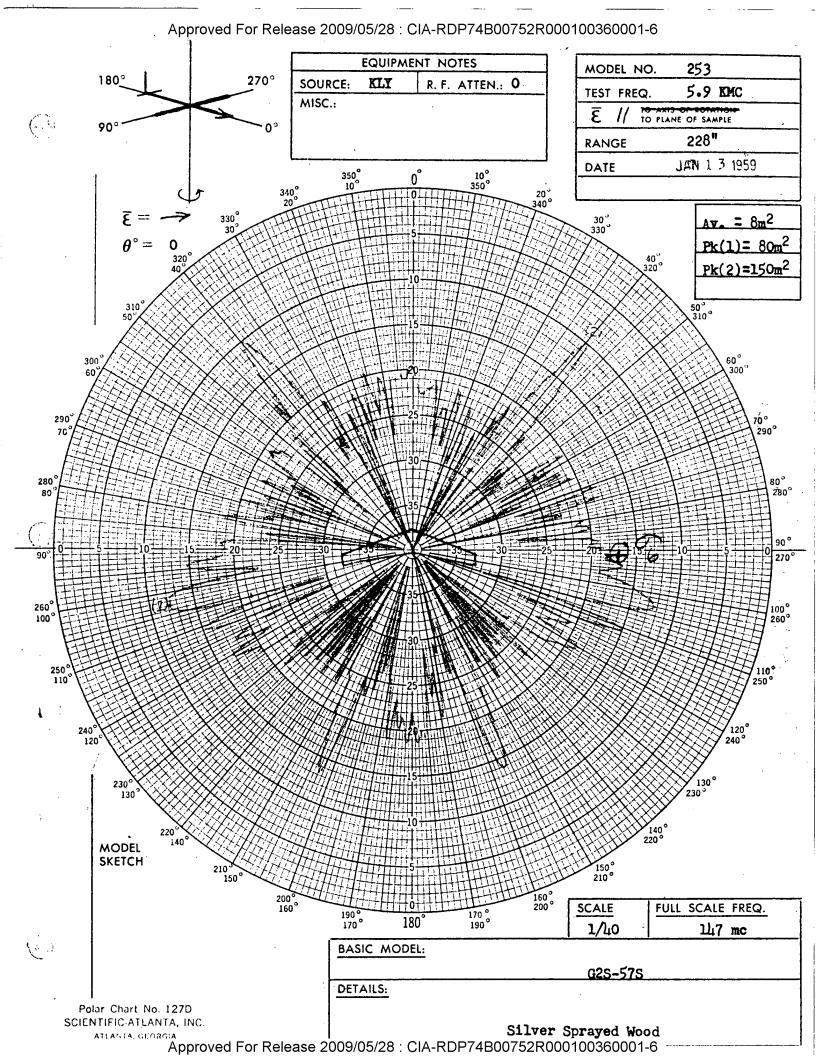


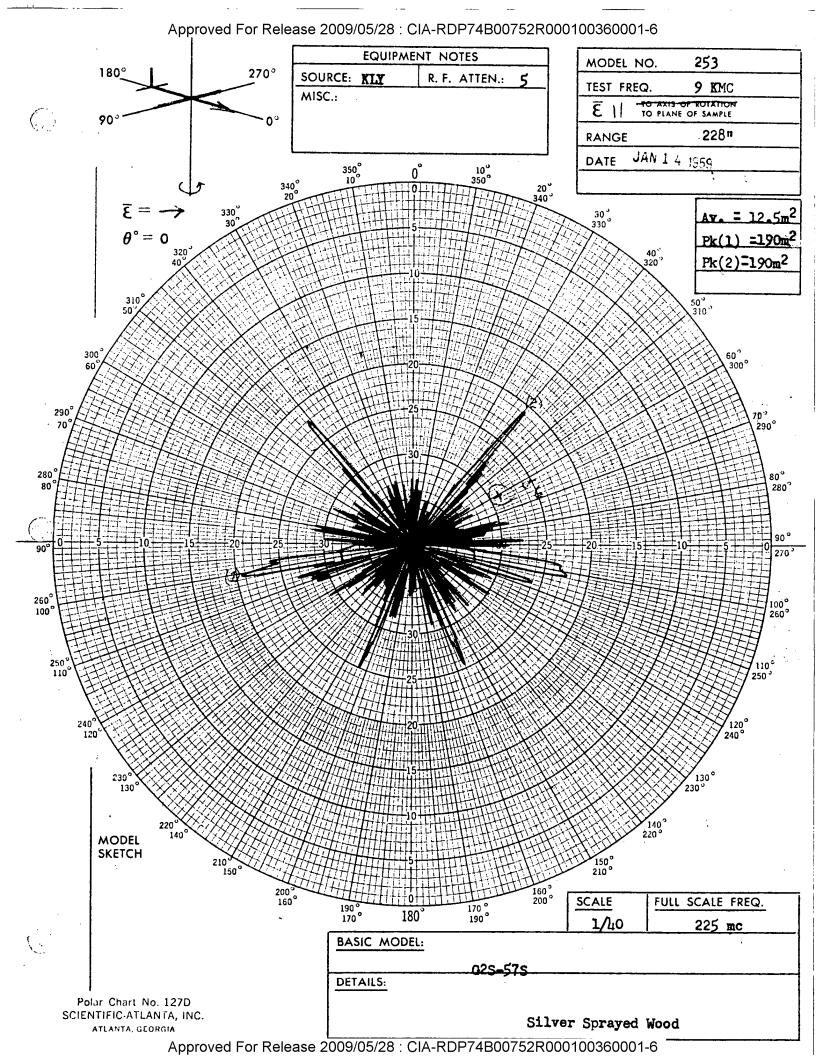


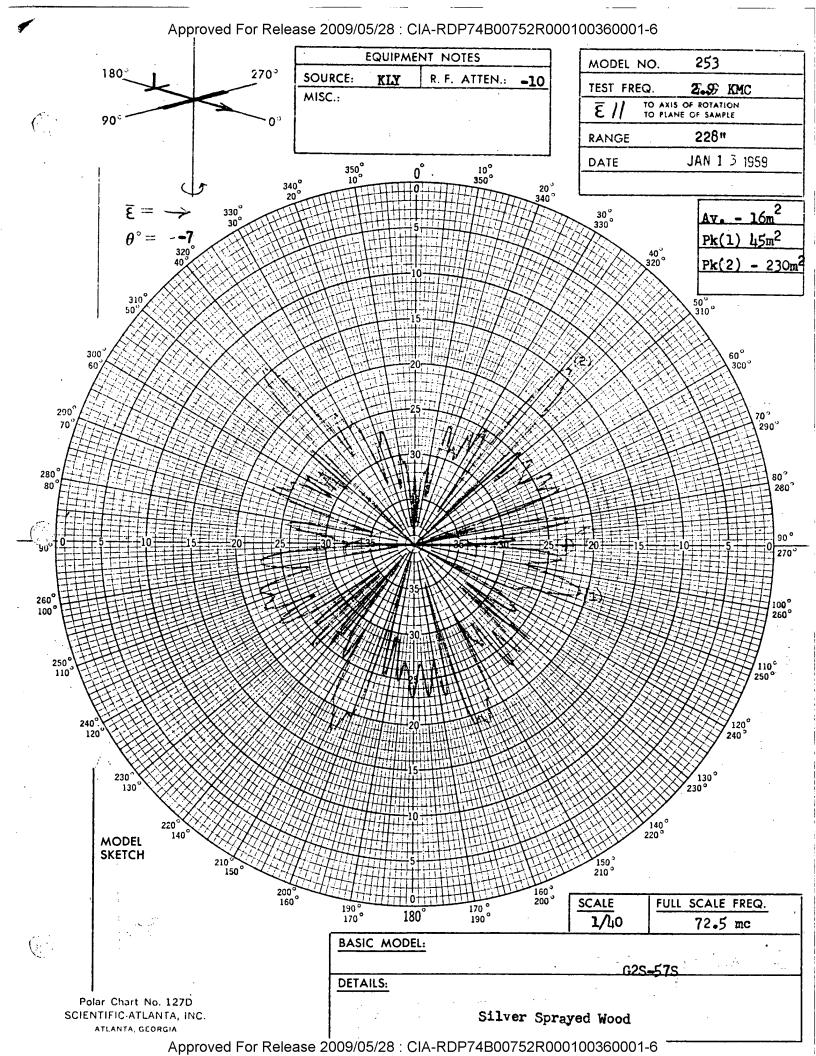


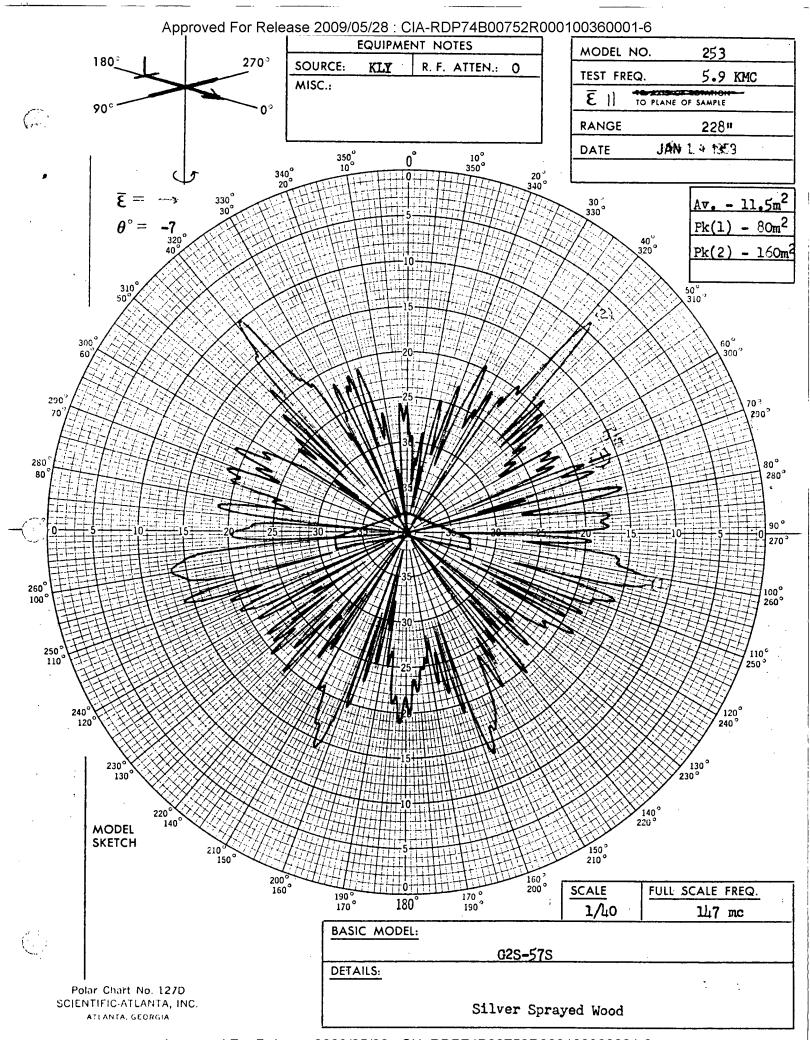
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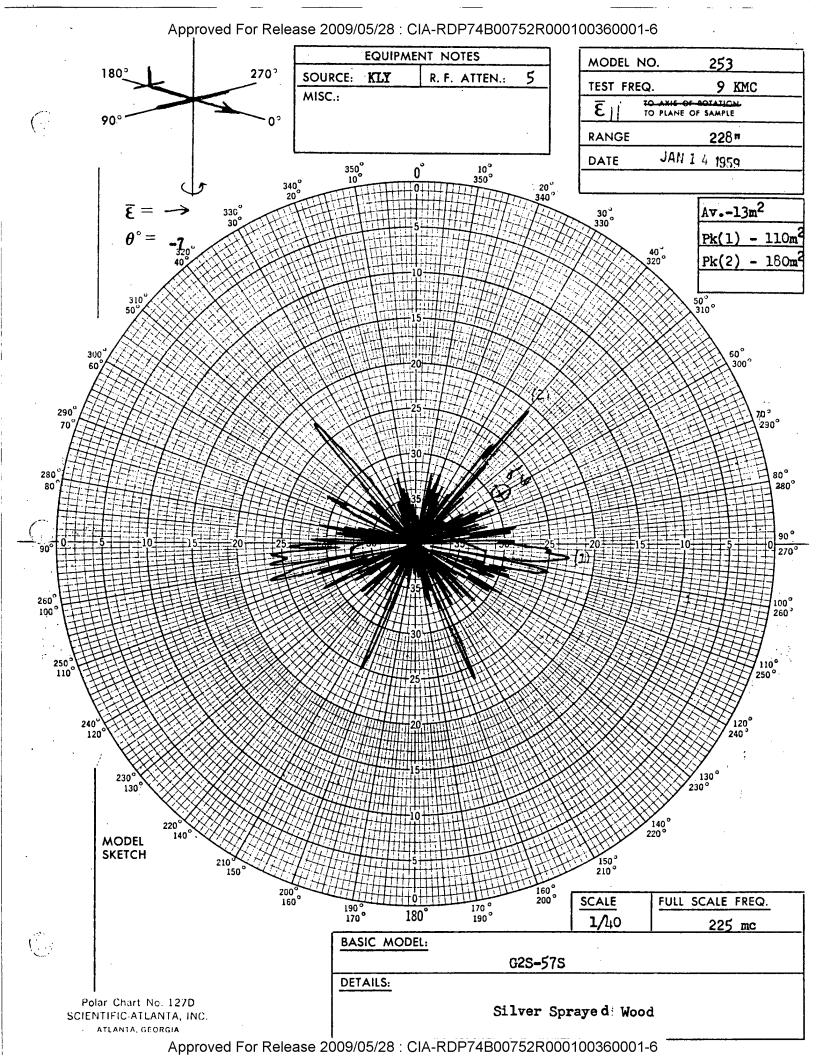


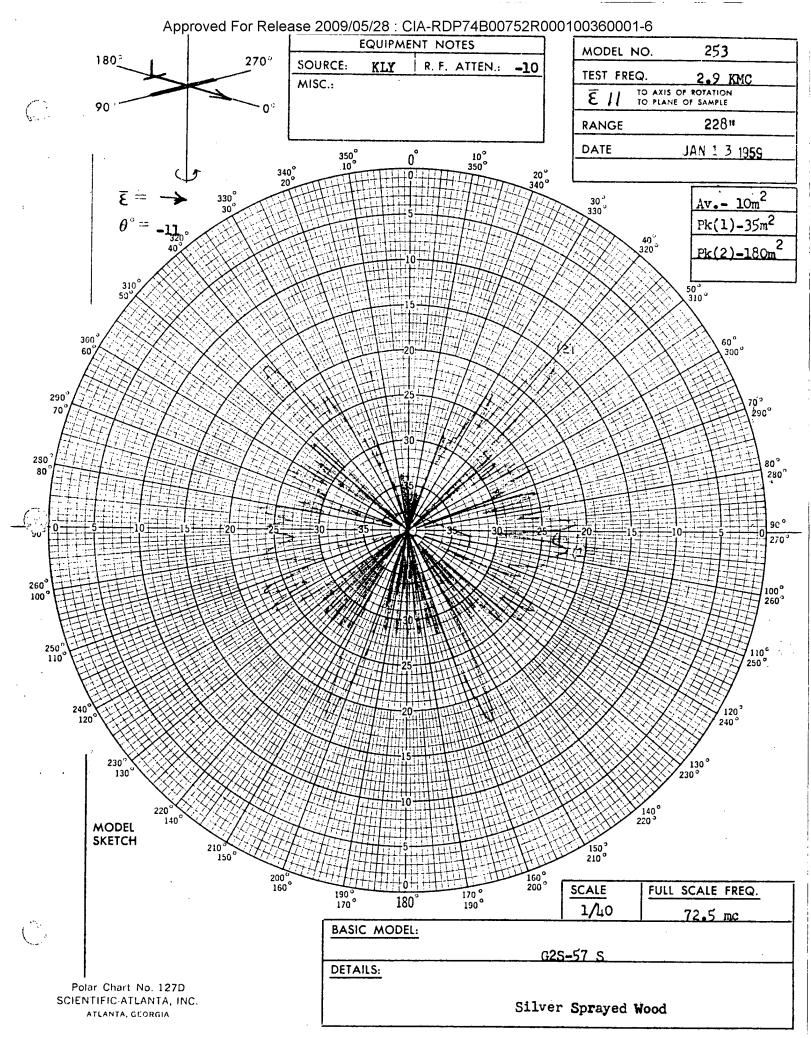


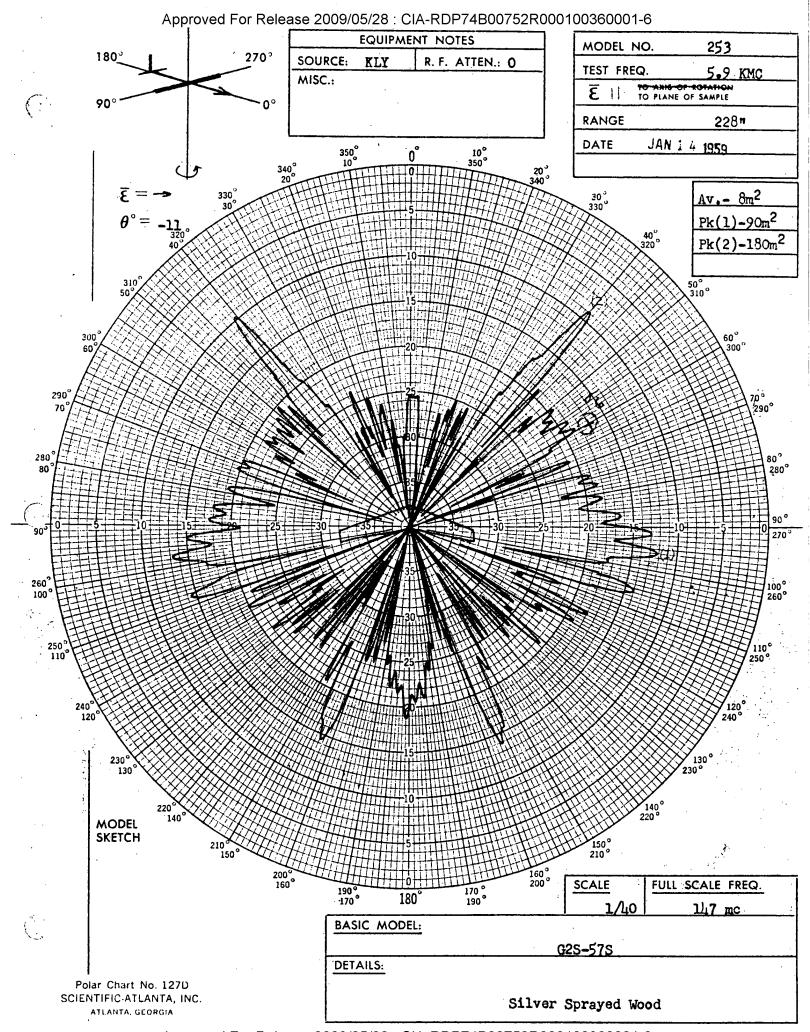




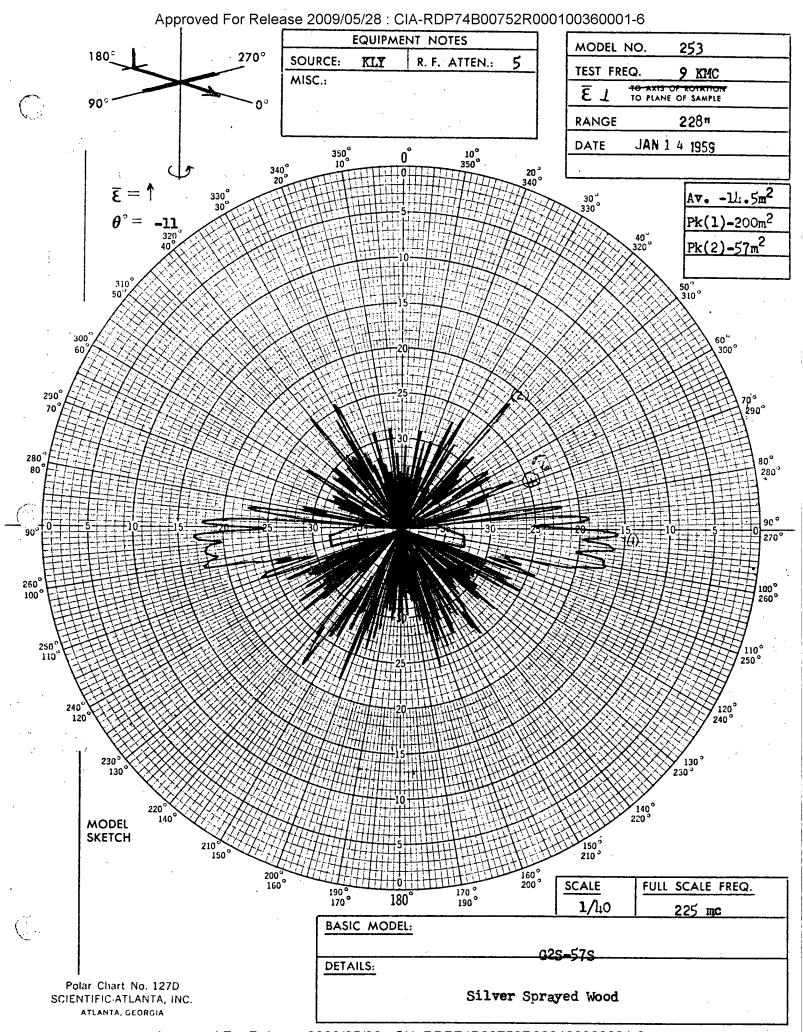
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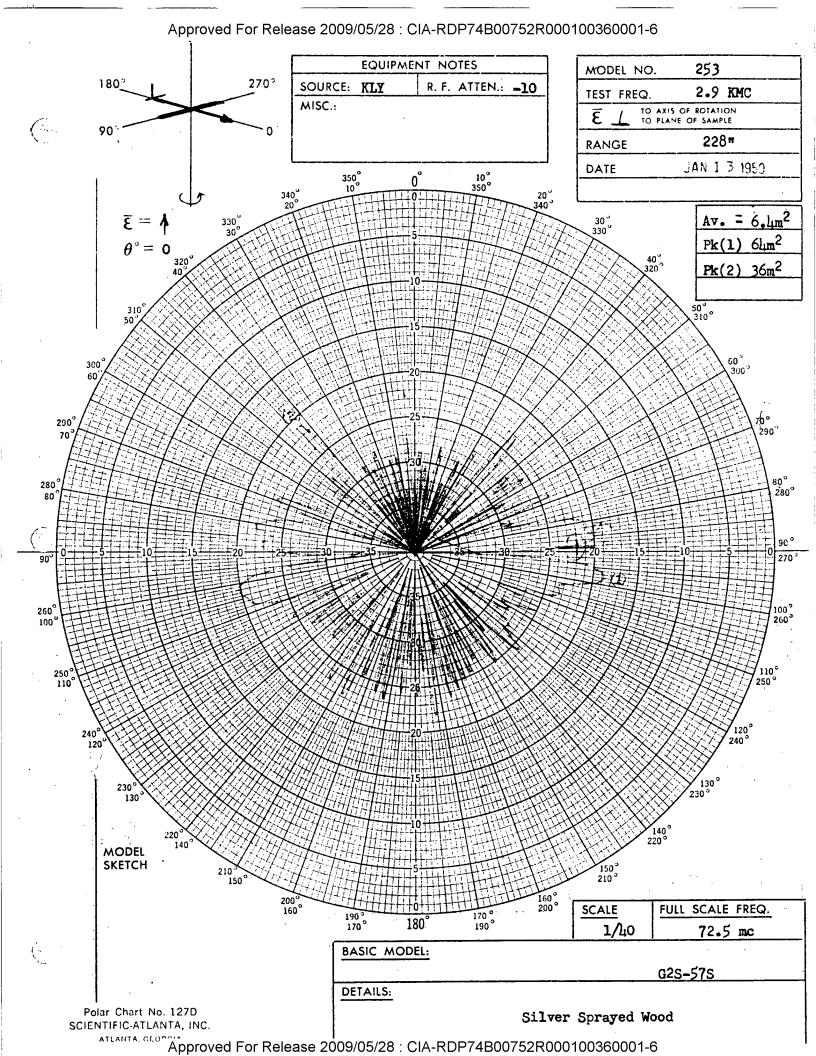


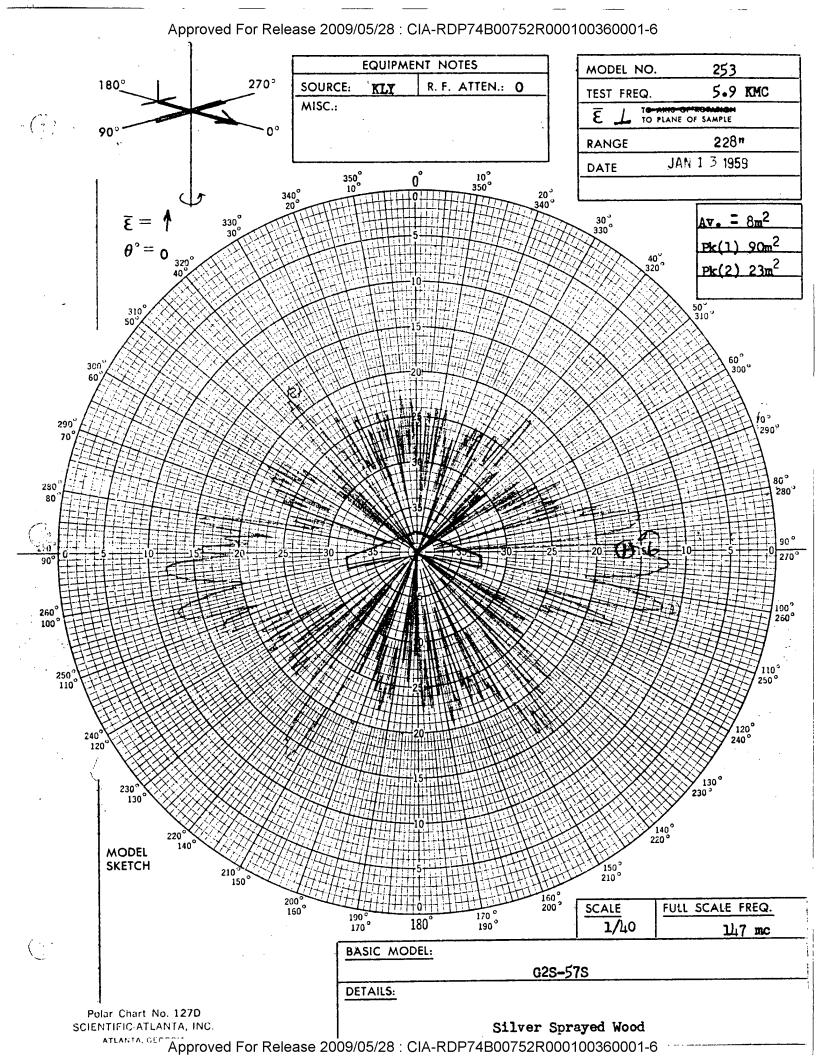


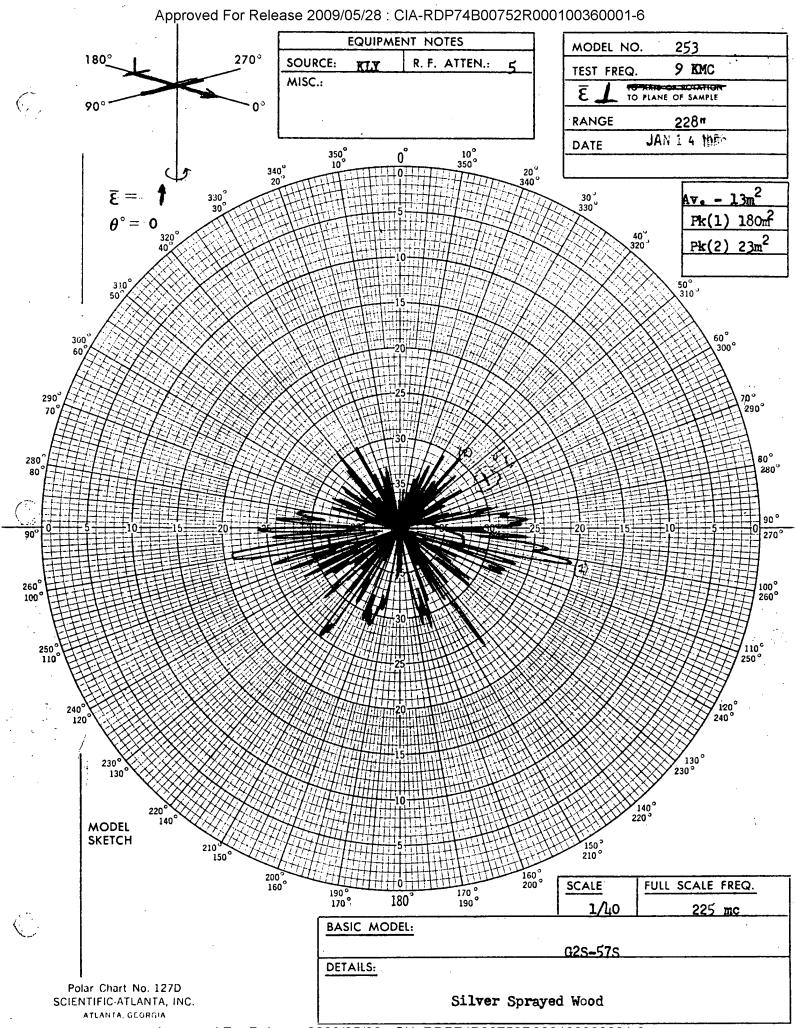
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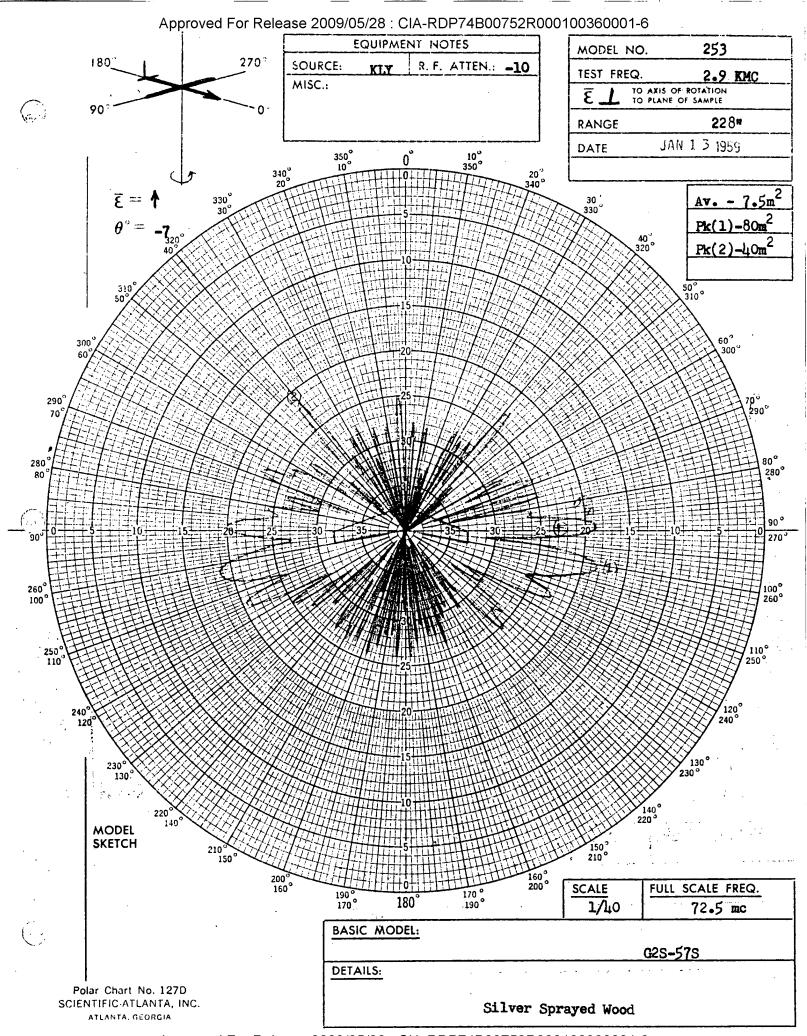


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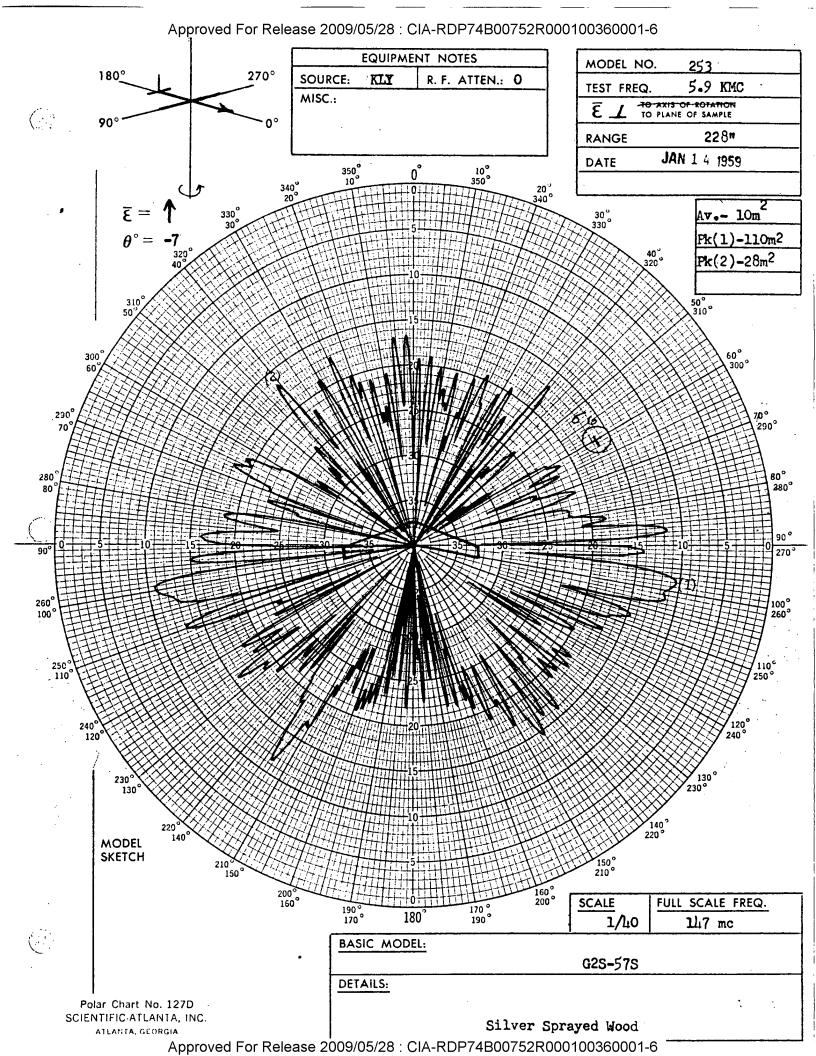


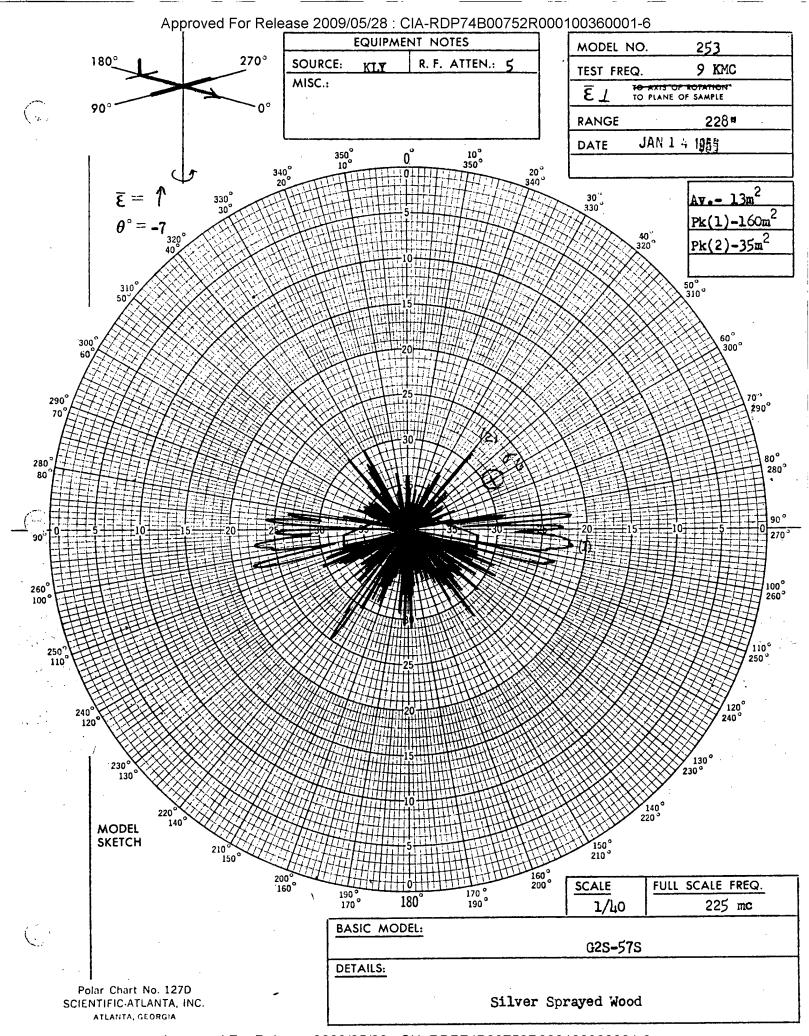




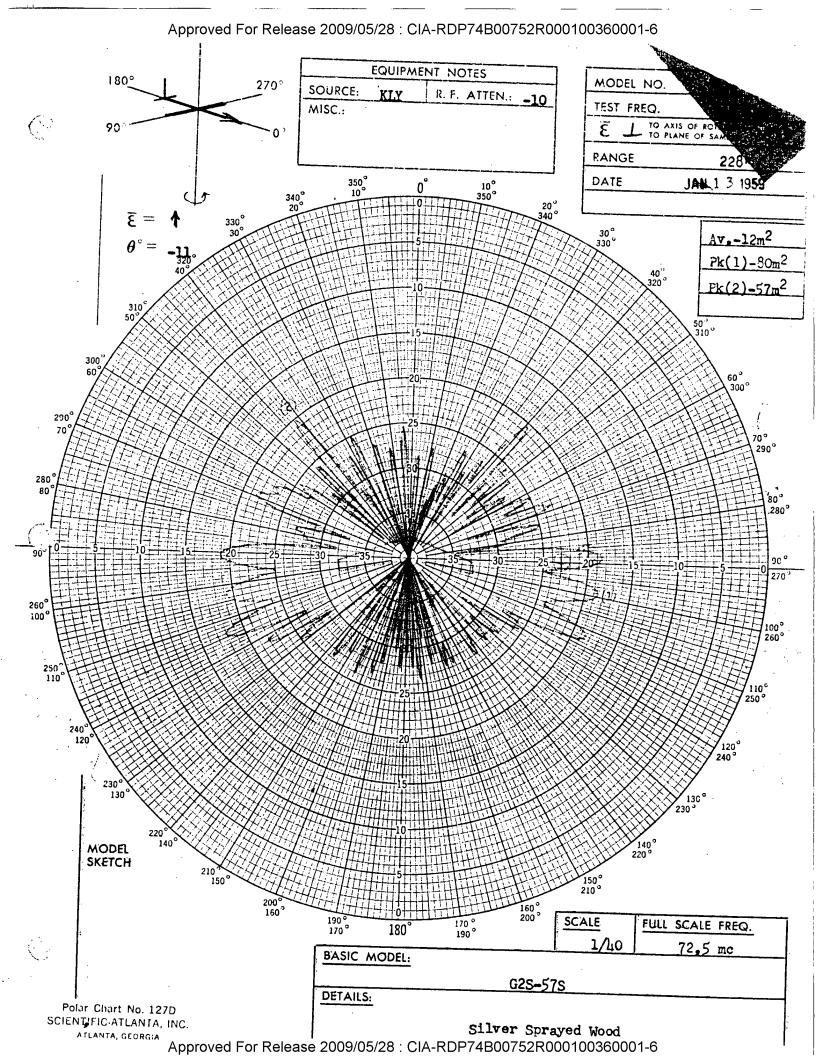


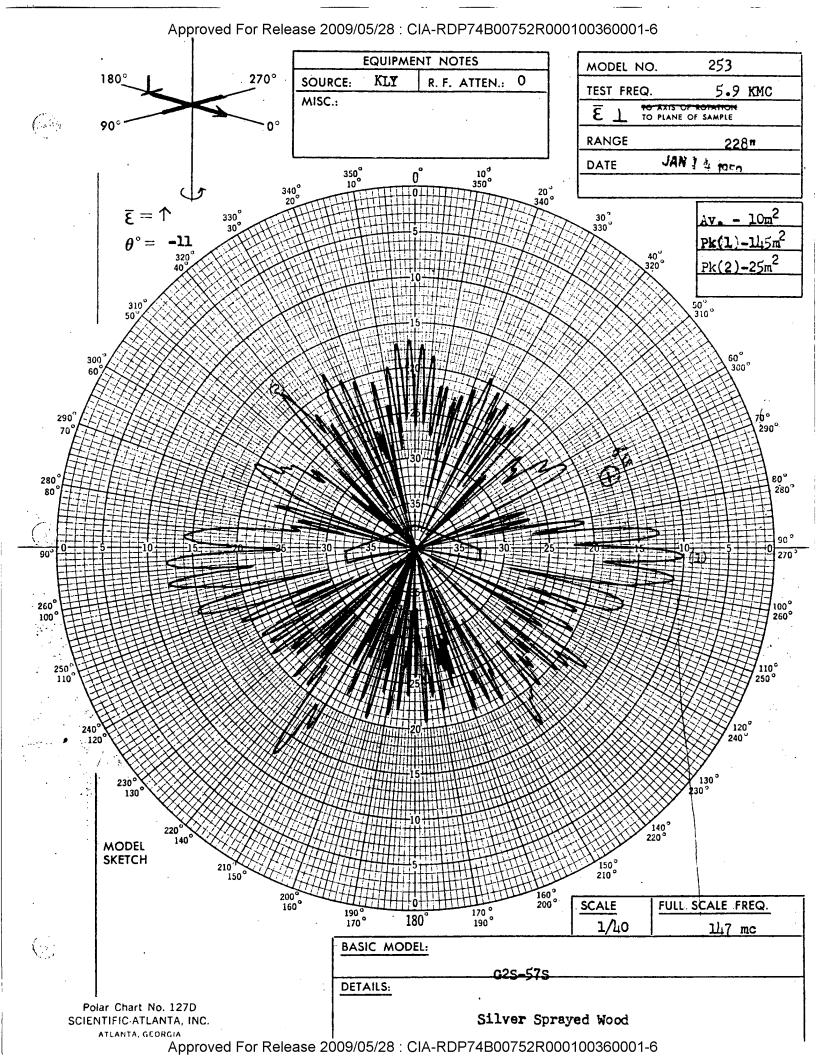
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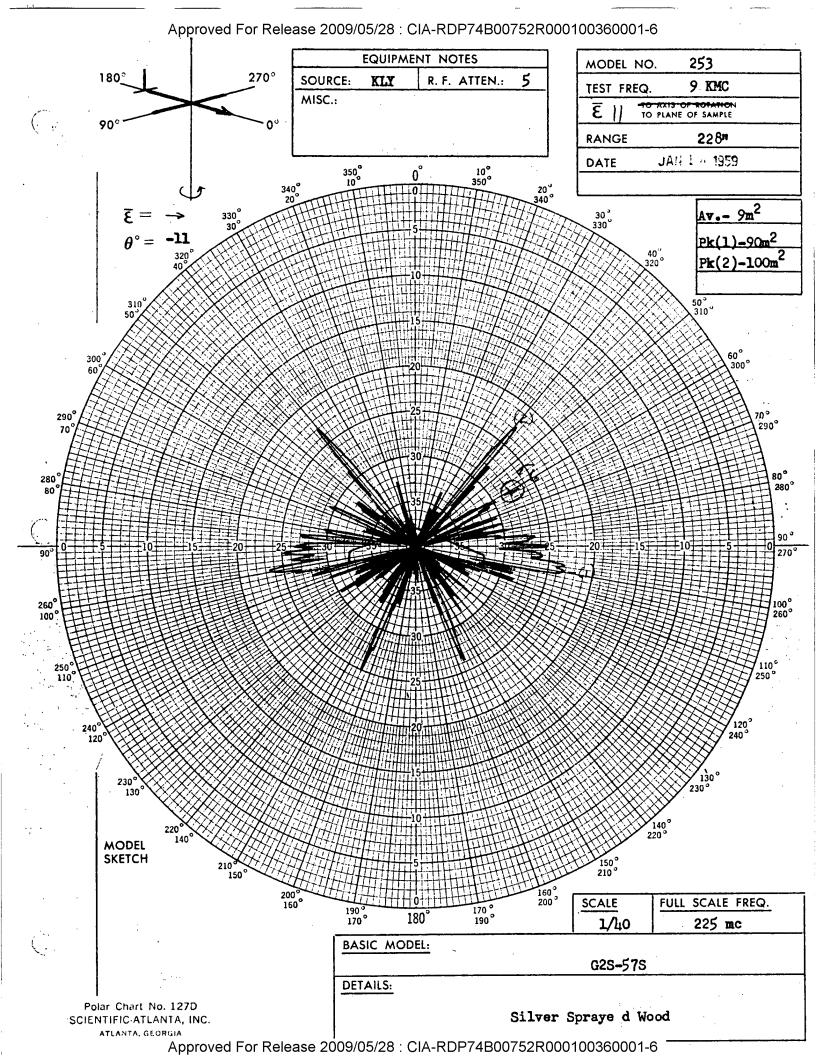


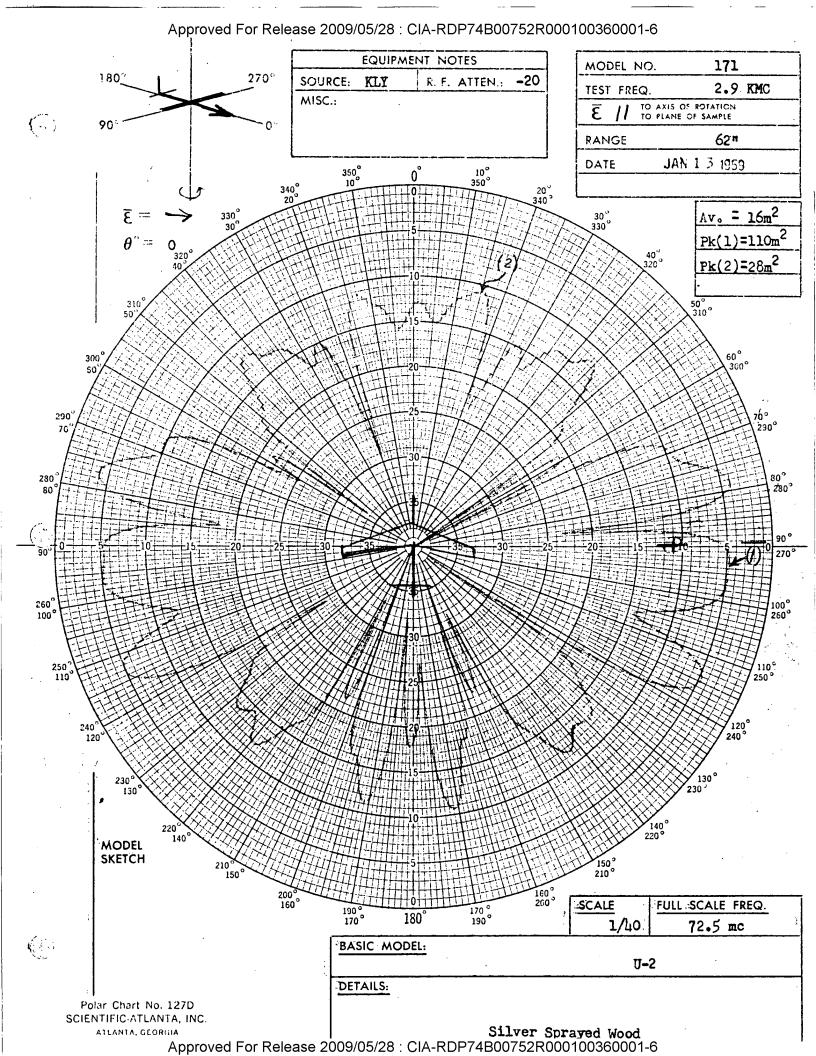


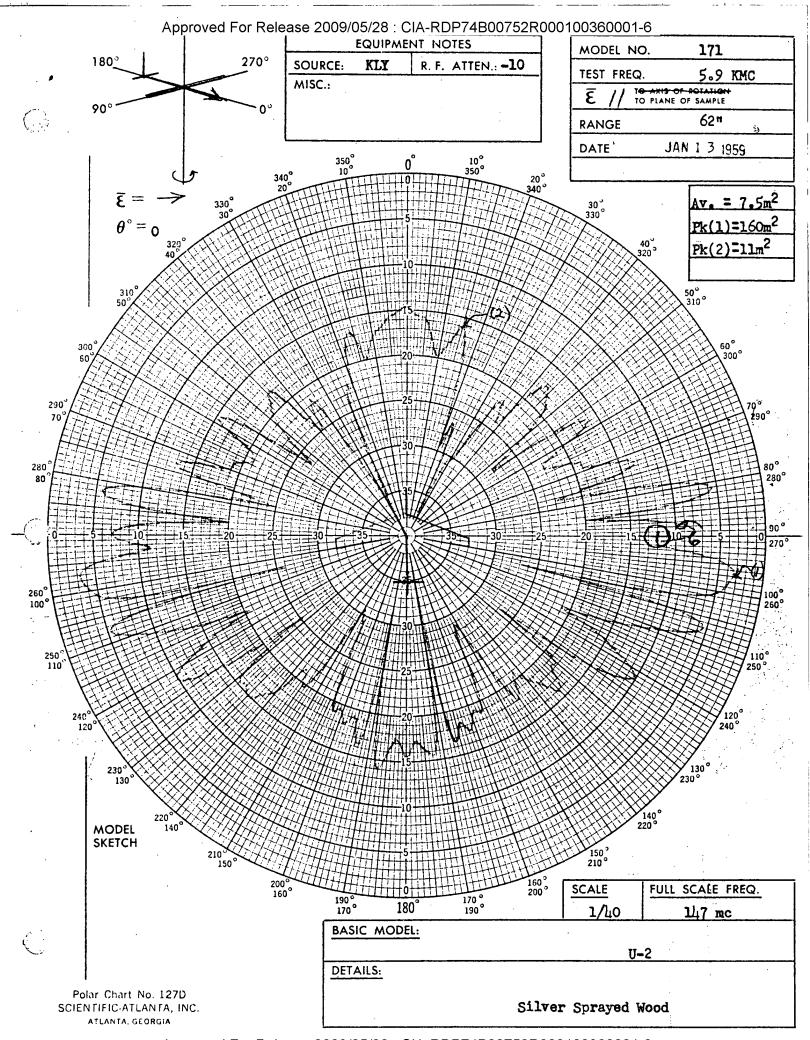
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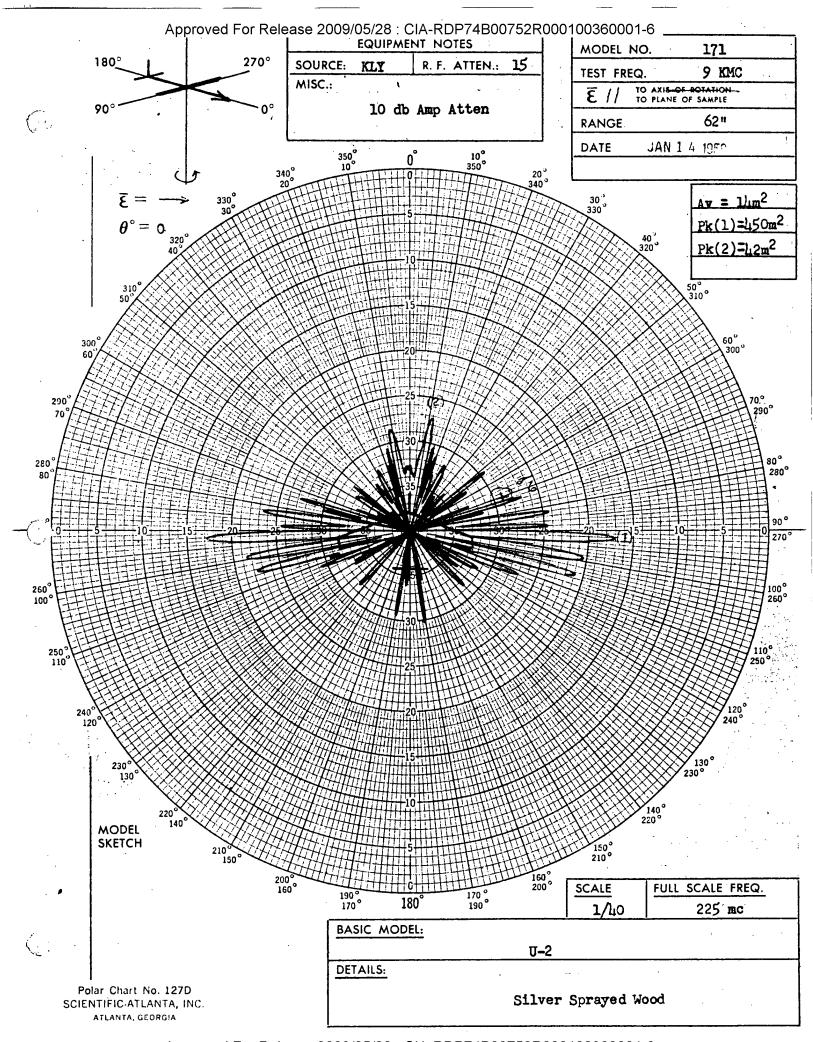




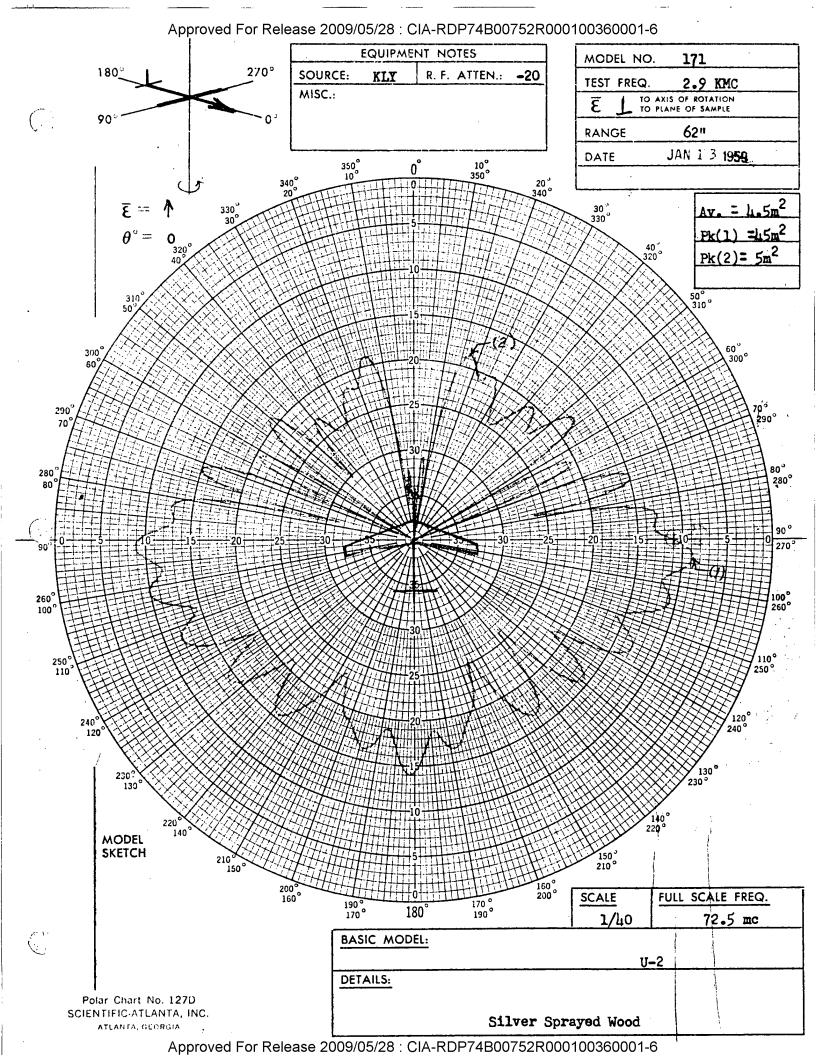


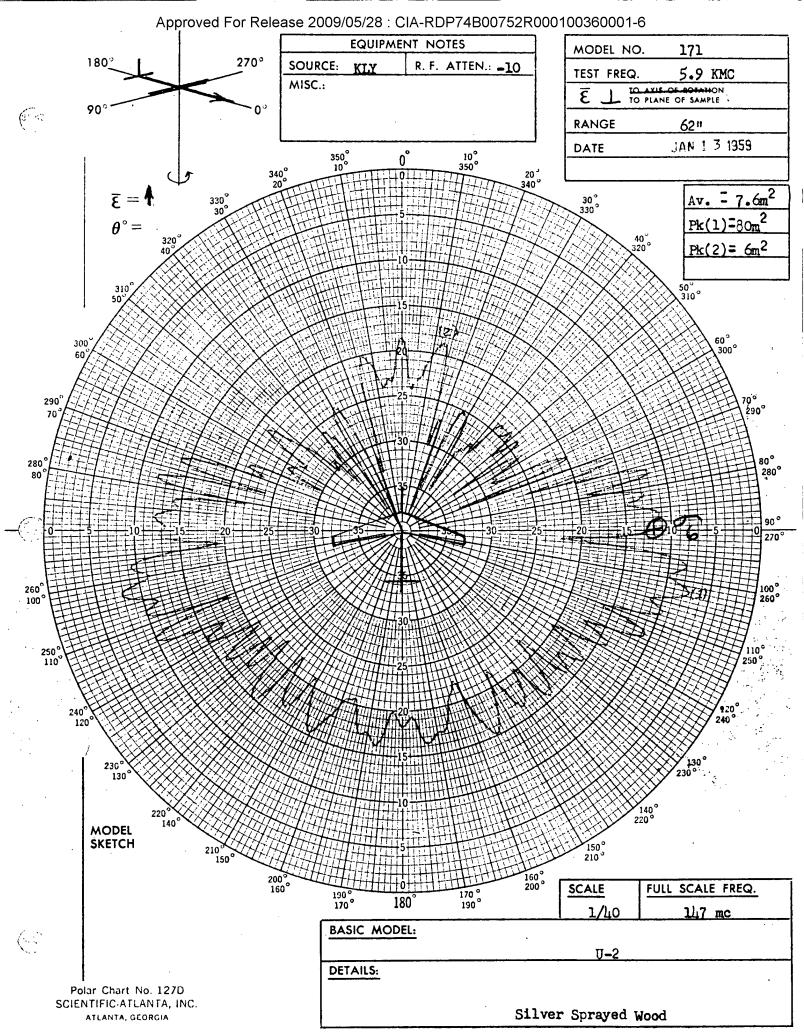


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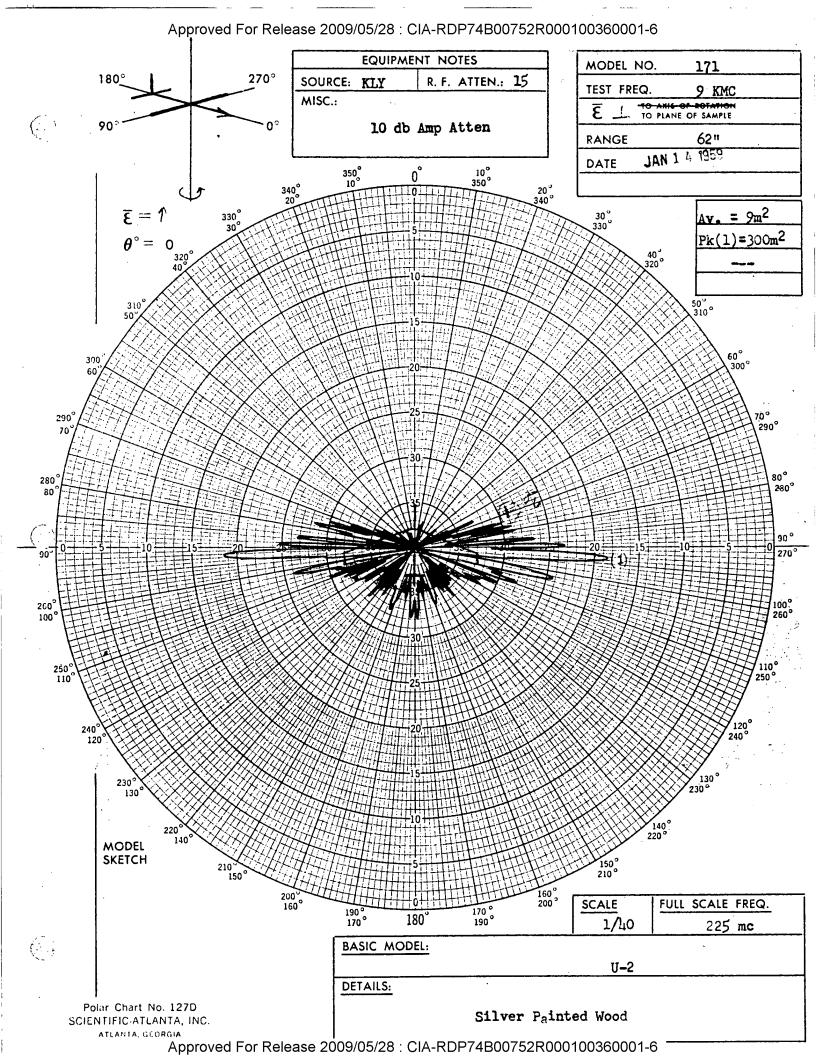


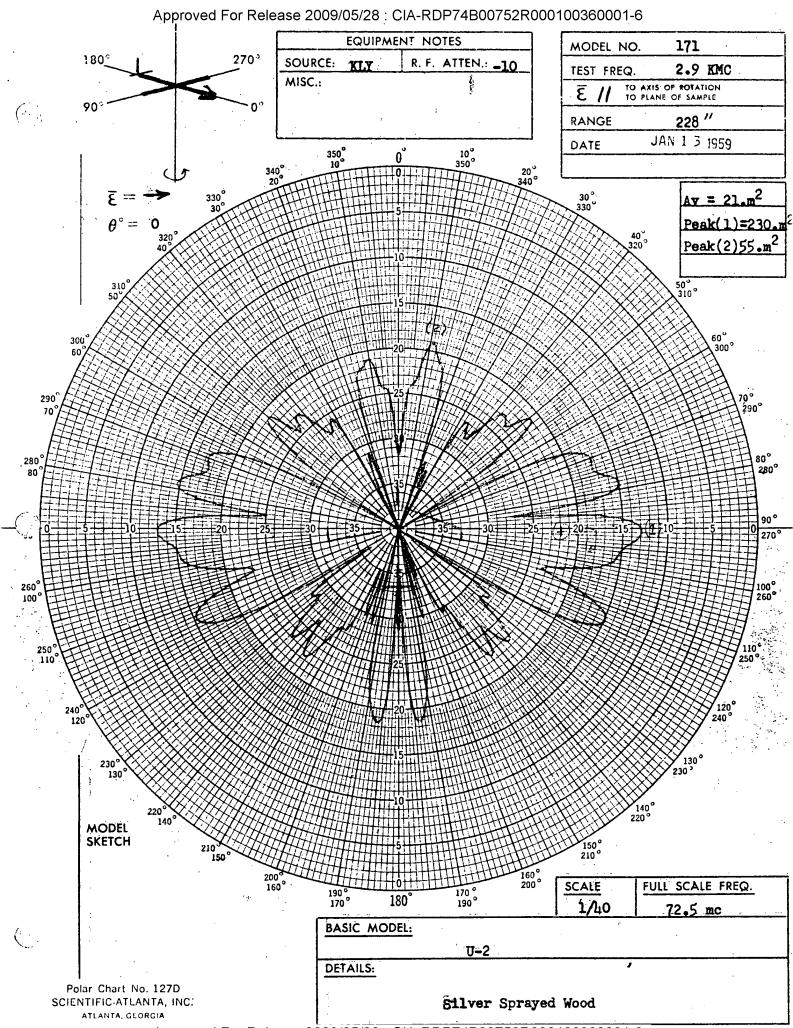
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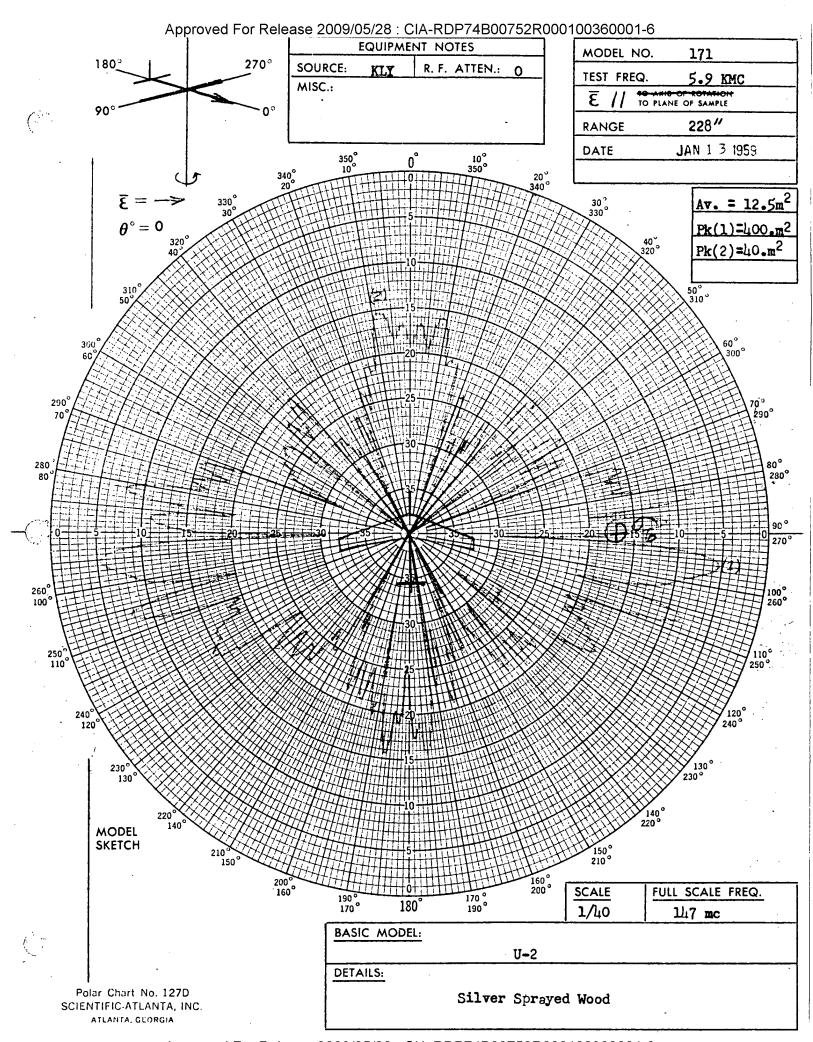


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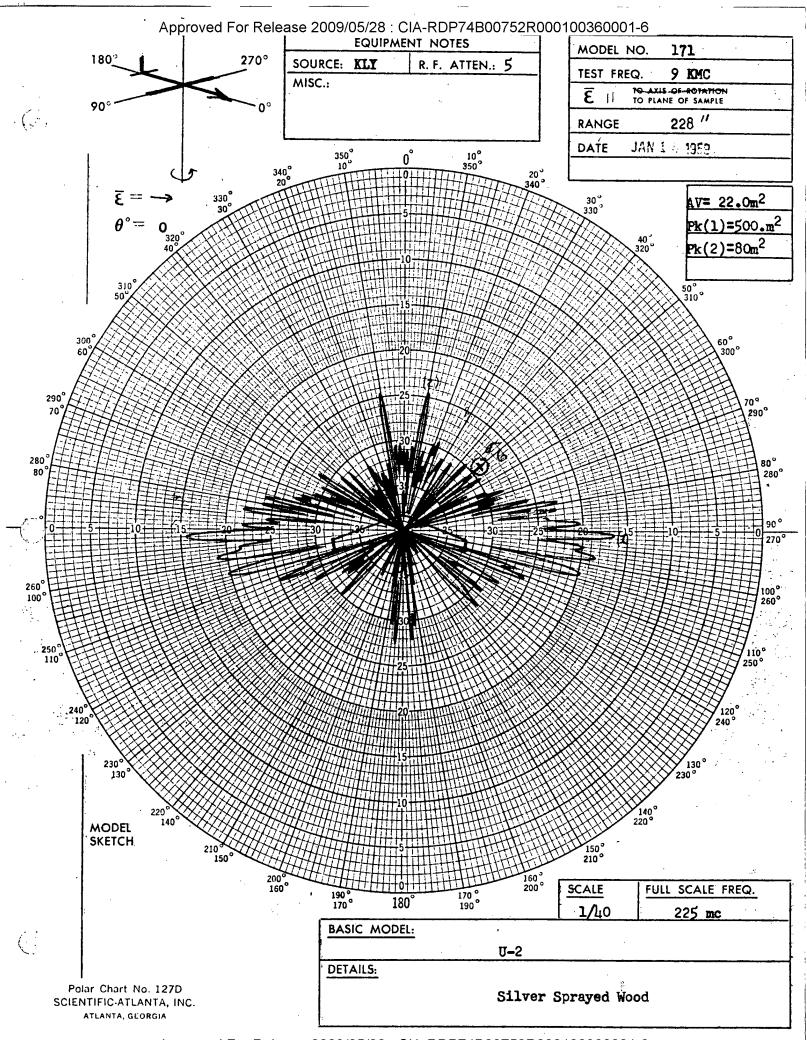




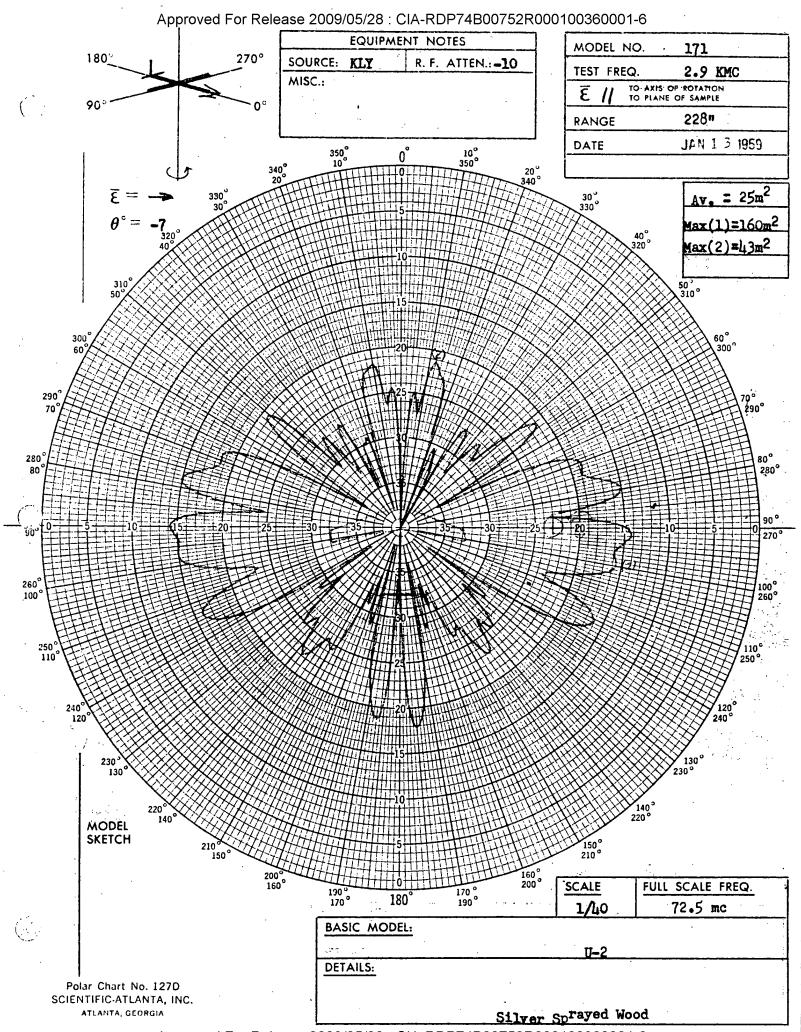
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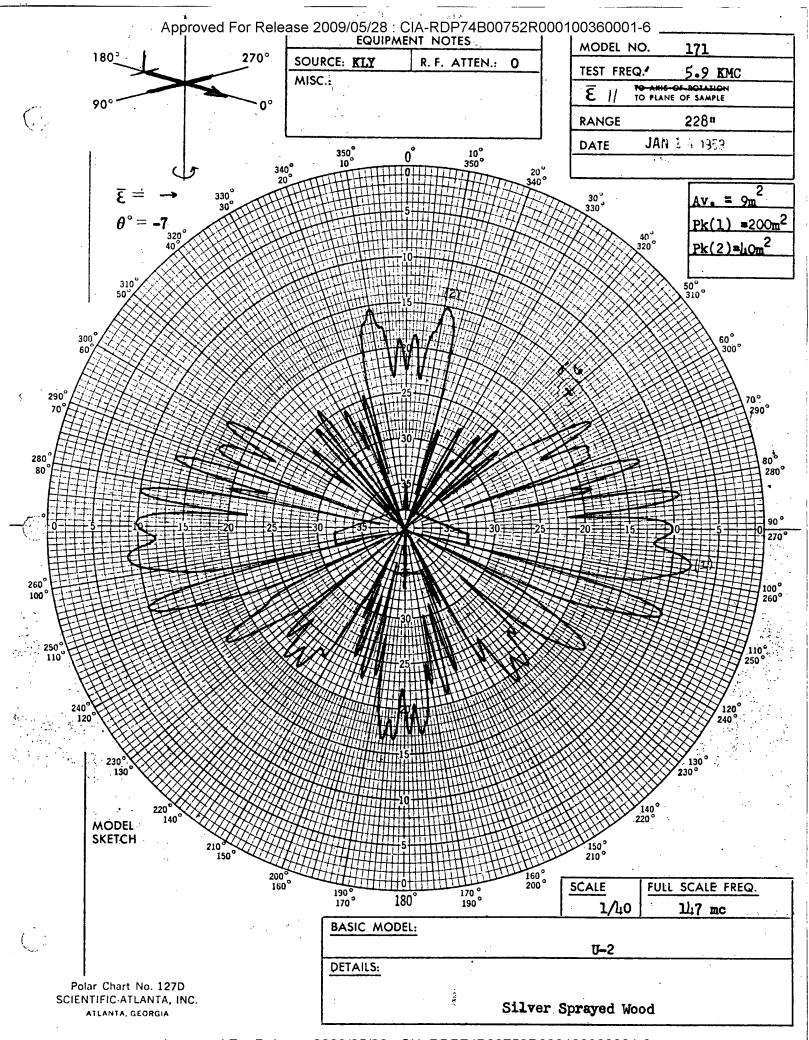
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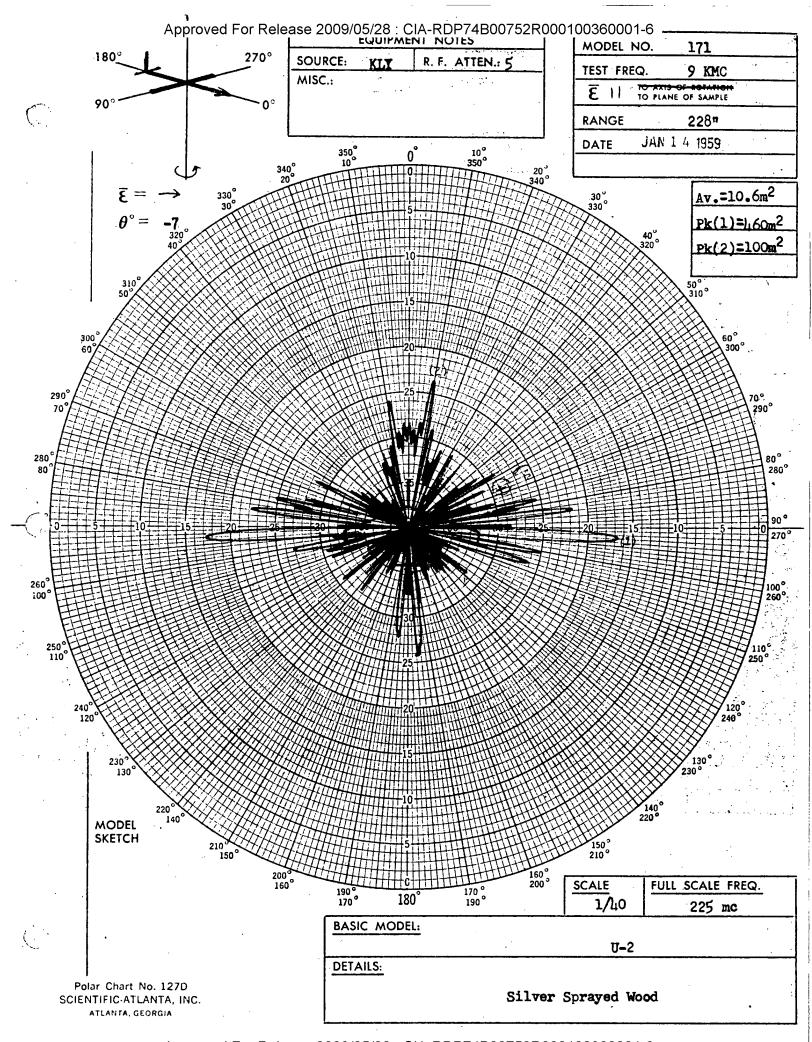
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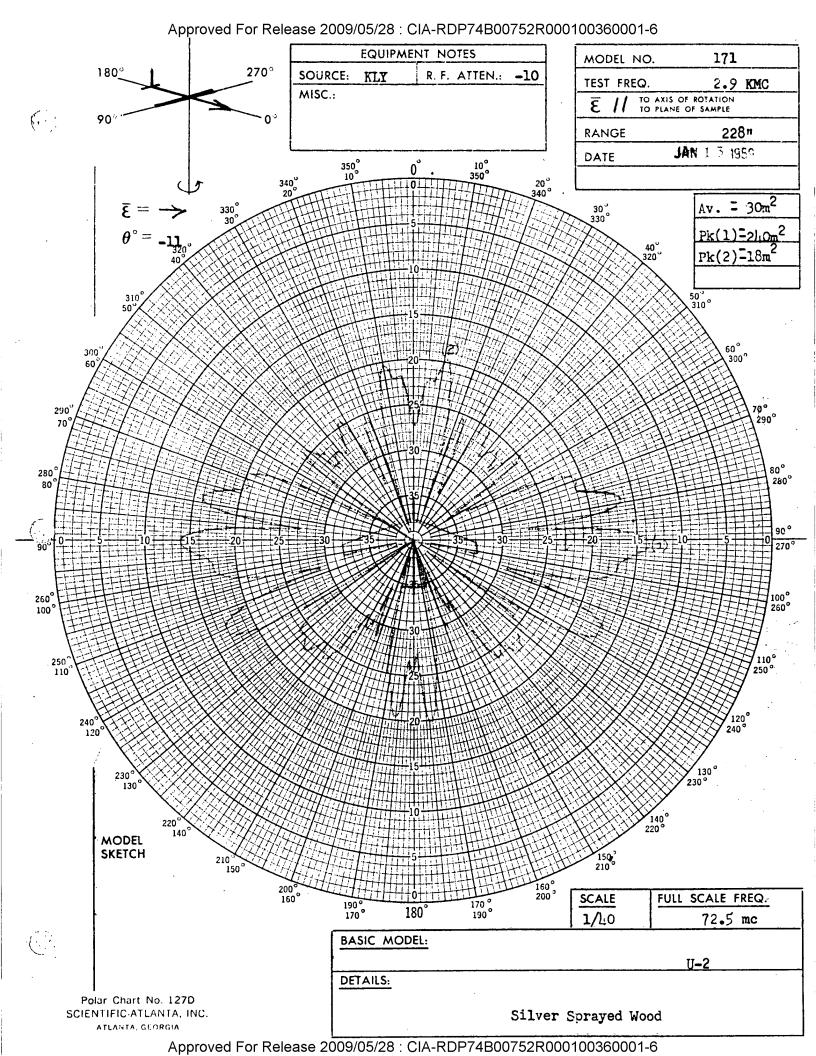
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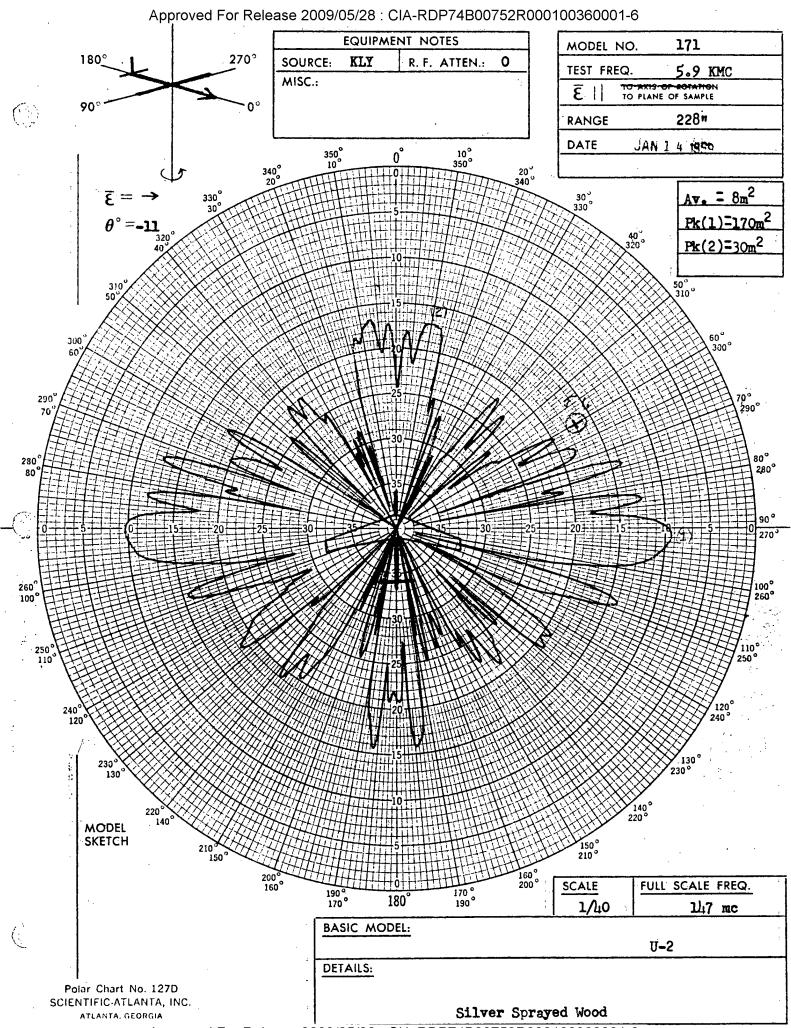


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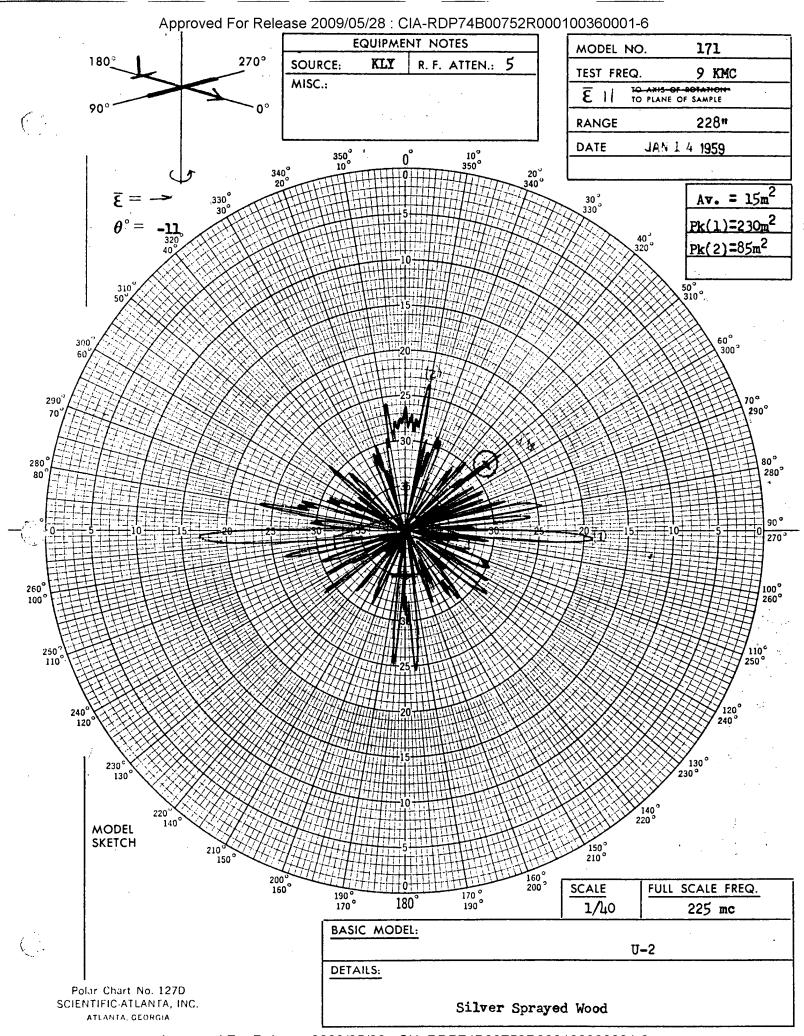


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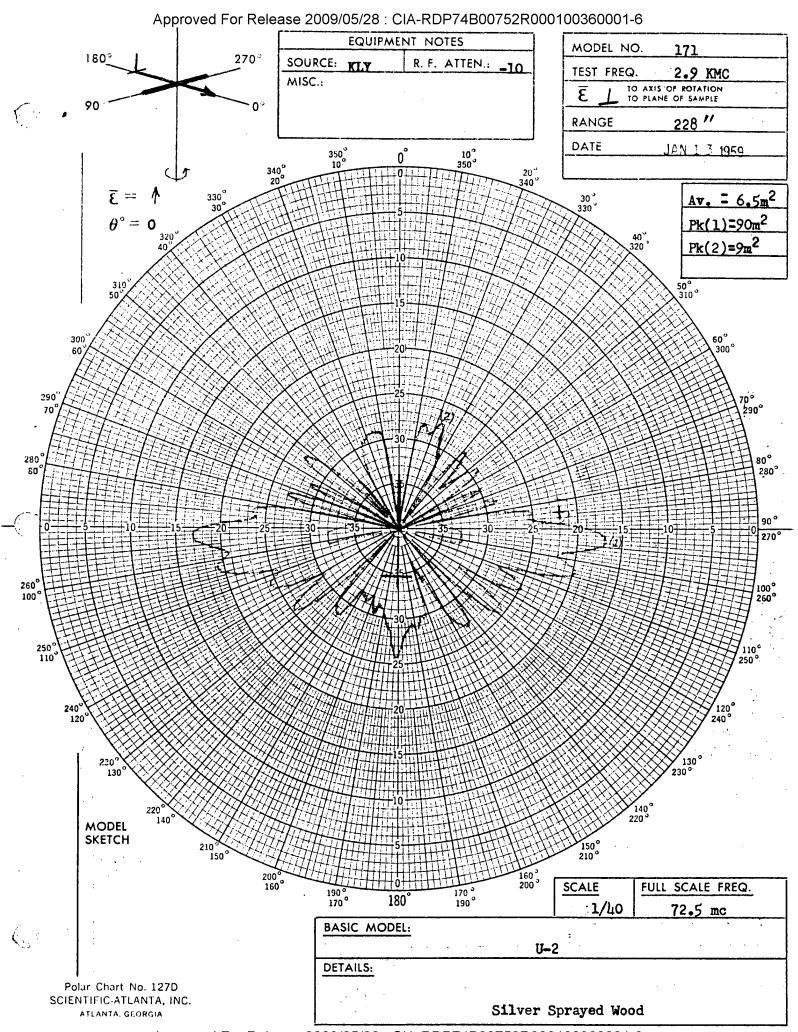




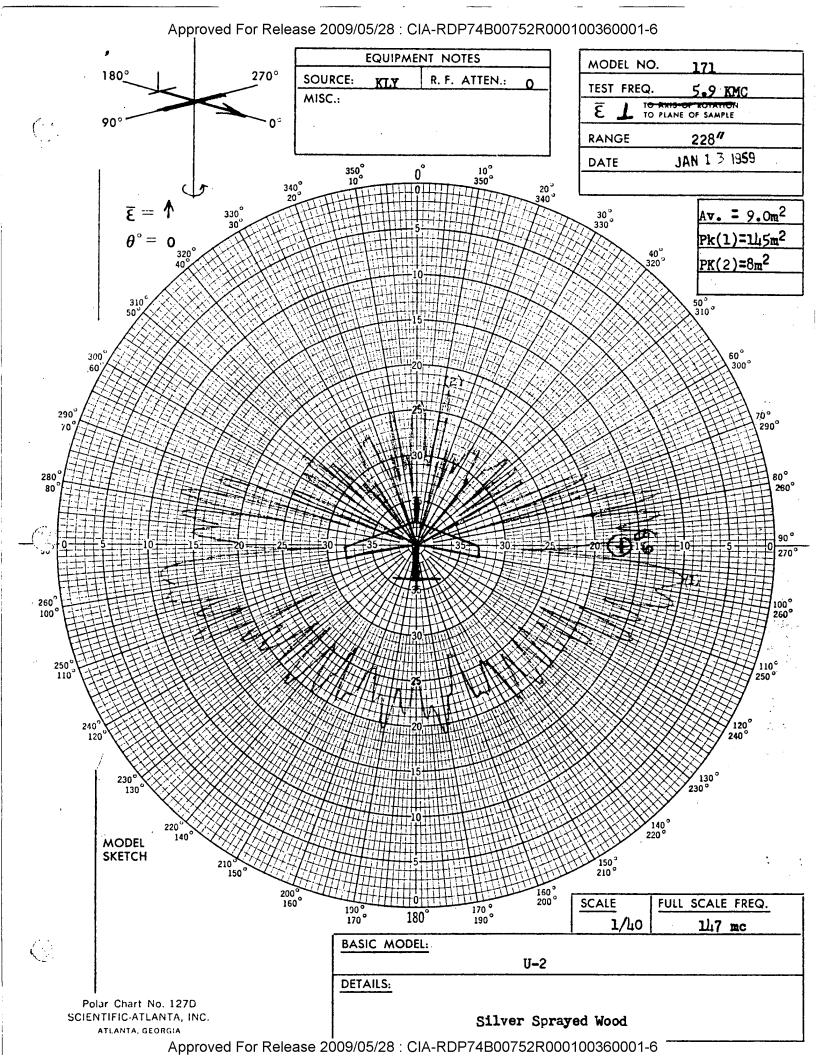
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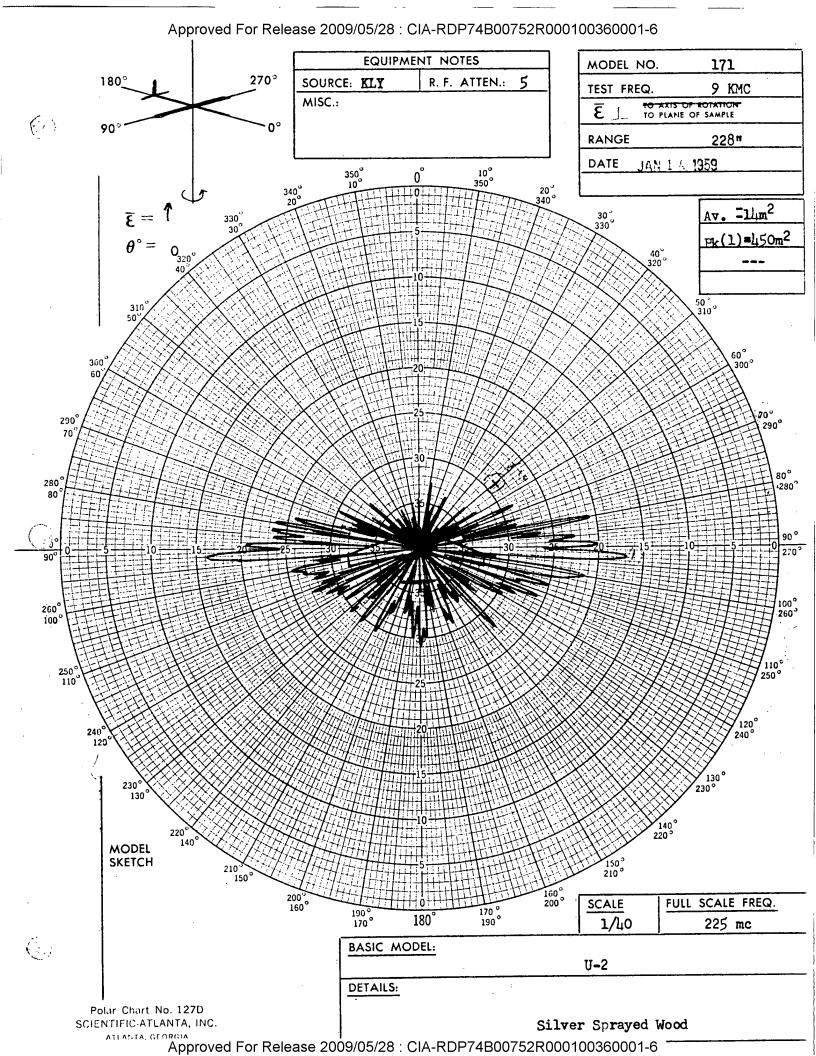


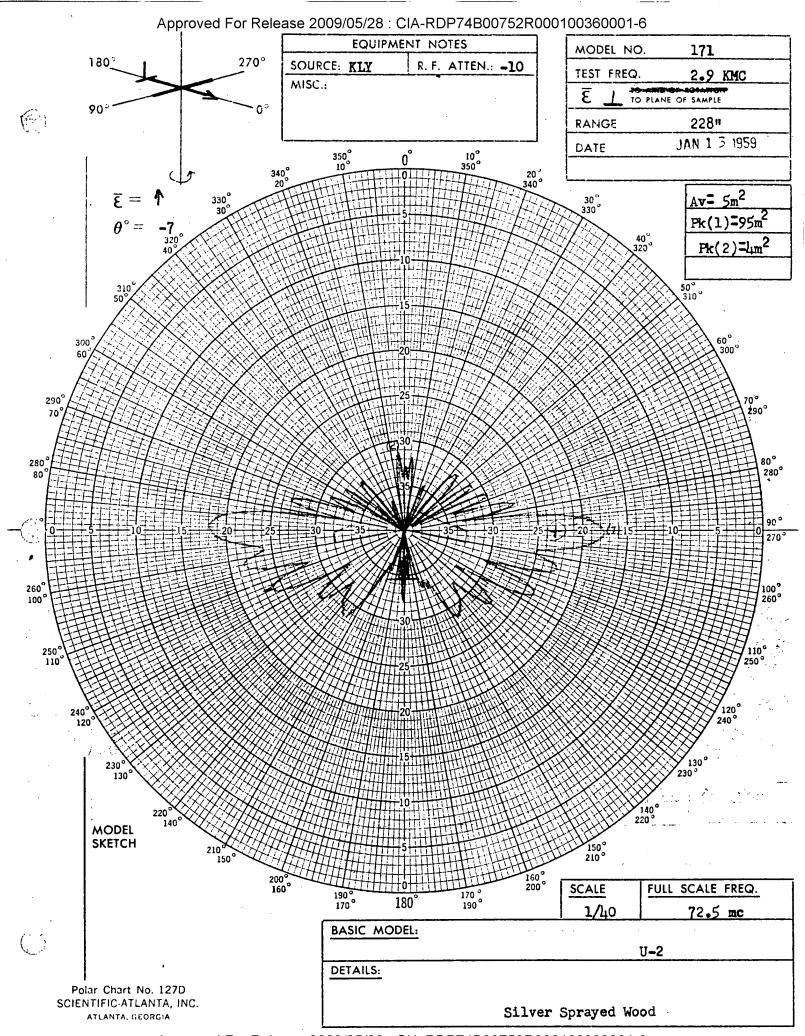
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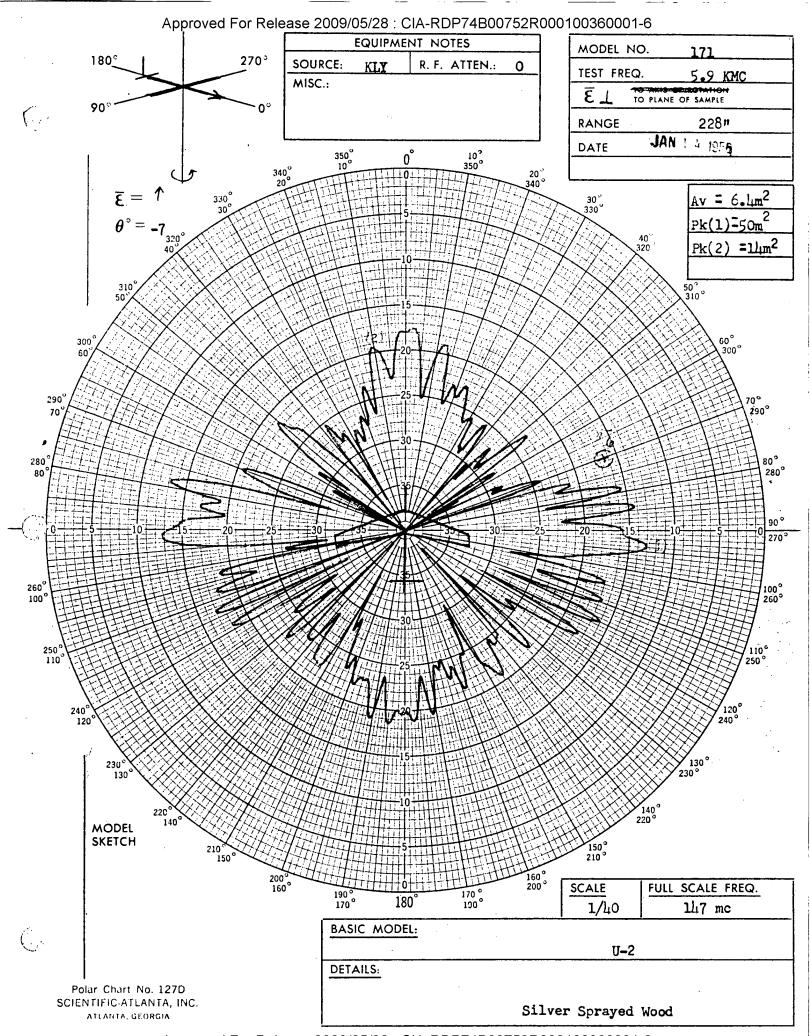
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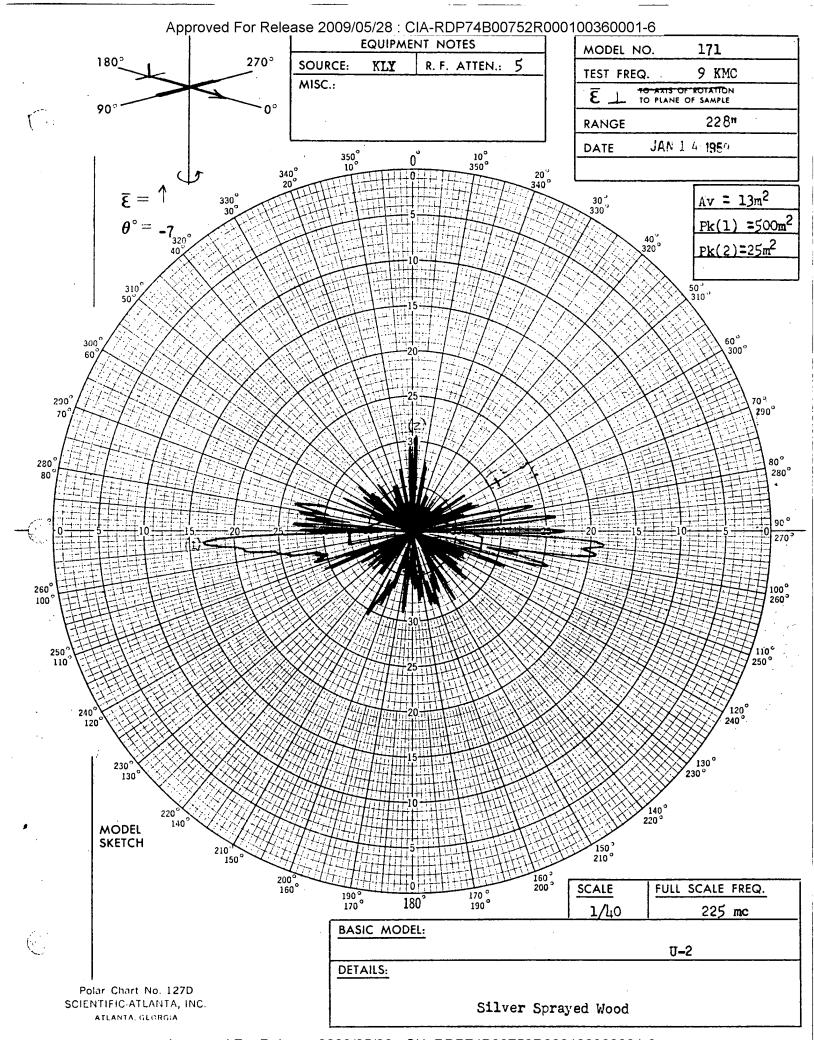




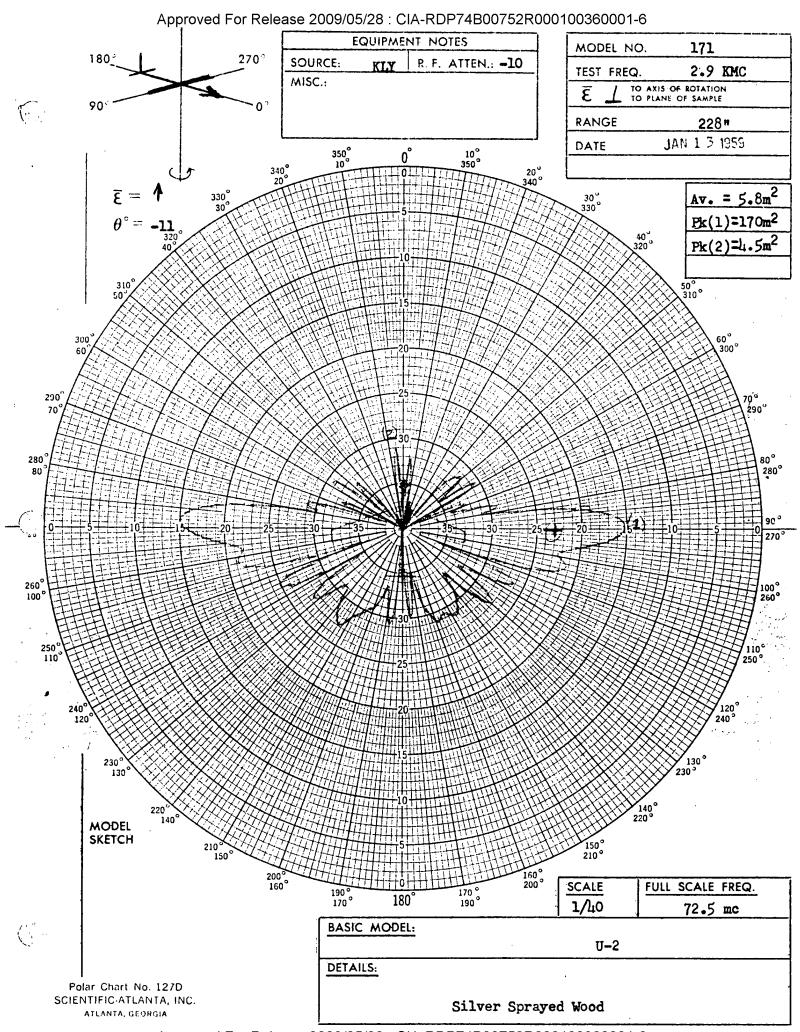
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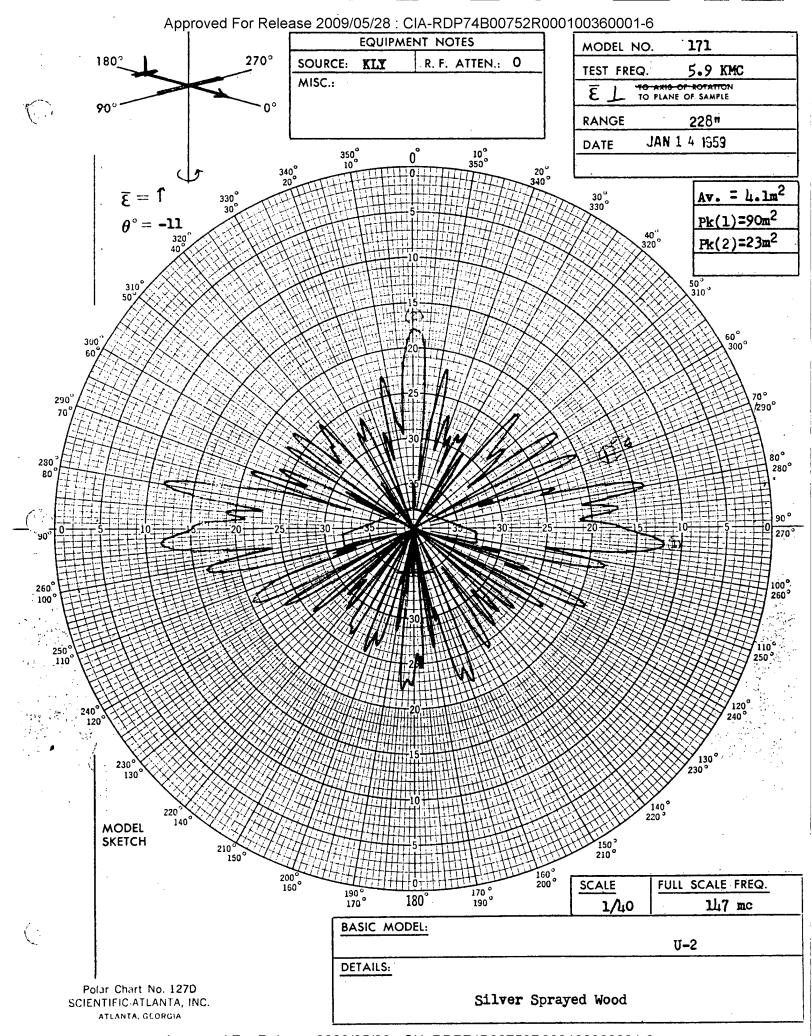
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